

Clinical Neuropsychology Newsletter

Dear reader

It is always a pleasure for us to put together our research newsletter detailing our activities over the past 12 months. In this newsletter you will find updates on projects that we had commenced the year before as well as new studies commenced in 2009.

Our research is primarily focused upon difficulties experienced by people who suffer acquired brain impairment from a number of clinical conditions including traumatic brain injury, mild cognitive impairment, Asperger's syndrome and psychiatric conditions. We are primarily interested in discovering the underpinnings of problems that get in the way of everyday function. So we are interested in why problems occur in inter-personal interactions and everyday communication. We are also very interested in trialling new techniques to overcome these difficulties.

Over the past year we have moved further into the field of psychophysiology. Psychophysiological techniques allow us to measure bodily reactions to external events (like changes in heart rate and skin temperature). By measuring these we have a clearer understanding of how people respond emotionally to significant events. Our work has been enhanced by the presence of two post-doctoral fellows in our lab. Dr Aneta Dimoska-Di Marco has worked with us for a couple of years and Dr Jacqueline Rushby who joined us mid 2009. Both Aneta and Jacqueline bring expertise in a variety of psychophysiological measures including skin conductance, EMG and EEG. Consequently we have a number of projects current and planned that incorporate these measurement techniques.

Table of Contents:	Page:
Welcome and thank you!	1
Call for participants	3
Research Studies:	
1. When people with traumatic brain injury fail to recognise emotions, is this because they fail to have an empathic (mimic) response to the facial expressions of others?	4
2. The role of emotion processing in social decision-making.	5
3. Understanding deficits in empathy after Traumatic Brain Injury: The role of affective responsivity.	6
4. Angry responses to emotional events: the role of impaired control and drive in people with severe traumatic brain injuries.	7
5. Changes in autonomic responses to facial expressions following severe traumatic brain injury.	8
6. A meta-analysis of performance in inhibitory control paradigms in adults with traumatic brain injury (TBI).	9
7. A trial on emotion perception in different face tests.	10
8. Can elderly people with MCI improve their cognitive functioning by doing regular computer-based brain exercises?	11
9. Reading a smile (and other great expressions): Development of a new program for remediating emotion perception disorders	12
Studies in progress and new research projects starting in 2009:	
10. Social cognition in people with Asperger's Syndrome.	13
11. Exploring new ways to remediate deficits in emotion perception	13
12. Communication disorders after brain injury.	14
13. Norms for adolescents on TASIT.	14
14. Facial mimicry of "unseen" emotional expressions.	15
Recently published papers and conference abstracts	16
Farewell and Good Luck!	17

We have also been fortunate to have two fabulous new research assistants join us in 2009. Both Ali Gowland and Therese English work full-time on various projects and are available to take any calls or queries about the research program (93853524). We have also bid adieu to our previous wonderful post-docs Dr Sophie Li and Dr Cristina Bornhofen who left in 2009.

The aim of this newsletter is to inform you of how your involvement is contributing to our understanding of how the brain processes social and emotional information both before and after a brain injury as well as what treatment techniques we are trialling.

This newsletter presents 14 different studies. Each study is described in terms of *what it was about*, *what we did*, and *what we found*.

Where studies have been submitted for publication, the reference to the article has been provided in case you want to read more about the study. In most cases it takes a long time for articles to be published, so most articles are not immediately available but will be in the next year or so. We have also detailed articles and conference presentations that are accepted for publication.

Many people and agencies have been involved in coordinating and assisting in these research studies. We would especially like to acknowledge the outstanding brain injury rehabilitation teams at Ryde Royal Rehabilitation Centre, Liverpool Hospital and Westmead Hospital.

Several of these projects also represent collaborations with researchers at UNSW and other institutions, in particular, Robyn Tate at the Rehabilitation Studies Unit, University of Sydney, Shane Darke at the National Drug and Alcohol Research Centre, Melissa Green at the Black Dog Institute, Sydney and Marc Pell, McGill University, Montreal.

Finally, as always we must express our deepest appreciation to all the people with a brain injury and their families, as well as our control participants, who have happily given their time and energy to contribute to our research. Without your willing participation none of this research would have been possible. We

sincerely appreciate your involvement and look forward to working with you all again in the future.

Many thanks!



Professor Skye McDonald, Clinical Neuropsychology Research Team Leader

*Contact details: School of Psychology,
University of New South Wales, 2052, NSW
Phone: 02 9385 3029
Email: s.mcdonald@unsw.edu.au*



Brain Sciences Team research meeting (L- R: Maurice Finn, Michelle Kelly, Danielle Mathersul, Jacqueline Rushby)

Participants needed

**We urgently need
new volunteers with
and without brain injury
to help us
with our research**

**We are currently seeking people
aged 17- 60 years. If interested please contact us on:**

9385 3524

Research Studies in 2009

1. When people with traumatic brain injury fail to recognise emotions, is this because they fail to have an empathic (mimic) response to the facial expressions of others?

Investigators: Skye McDonald , Sophie Li, Jacqueline Rushby, Arielle de Sousa and Charlotte James

What the study is about:

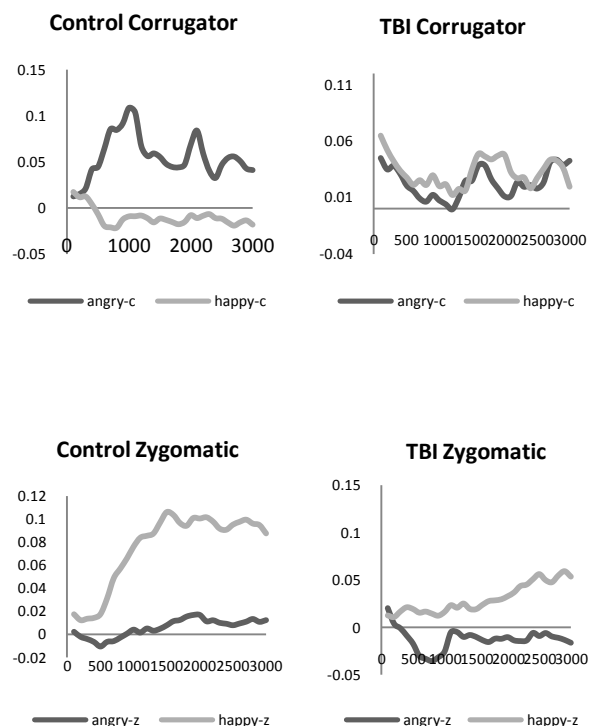
When watching another person's facial expression it is normal for adults to faintly mimic that expression with their own faces. There are probably a number of reasons for this, but one idea is that this mimicry actually assists in the interpretation of another's feelings, i.e. if the viewer's face crinkles up in a smile, this helps them realise the other person they are watching is smiling – and is happy. Because people with traumatic brain injuries are poor in recognising emotions in others, we were interested to see whether they also have poor mimicry, and whether these two problems were related.

What we did:

In this study, people with severe traumatic brain injuries, as well as normal adults without injuries, were asked to watch a series of faces depicting different emotions. During this task, their facial muscle activity was monitored. The expressions they viewed were either static photos of faces, or else dynamic (i.e. like video) portrayals of people becoming emotional. All participants were also asked to label emotional expressions in a separate set of photos.

What we found:

In the following figures we have shown the average muscle activity for 3 seconds for the brow area of the face (the corrugator) which tends to tense when people are angry and the zygomatic muscle (the cheek) which tends to stretch when people smile. In the left hand panels is the performance of 20 non-injured adults and on the right is the average performance of 21 adults who have experienced severe traumatic brain injuries.



As can be seen from these figures, people did tend to mimic facial expressions. Both the control (non-injured) and TBI adults mimicked happy expressions with their cheek (zygomatic muscle) and this mimicry increased over the 3 seconds. They did not show any cheek activity when viewing angry faces – which is what we would expect. The two groups performed differently to angry faces. The non-injured adults also mimicked angry expressions by showing increased brow (corrugator) activity, and again showed no such brow activity in response to happy

faces. The adults with TBI, however, did not show any mimicry to angry expressions.

The adults with TBI were also generally poorer than the adults without injuries in terms of their abilities to label emotional expressions. Interestingly, there was no relation between the ability to label emotional expressions and the ability to mimic.

To find out more about this study:

McDonald, S., Li, S., De Sousa, A., Rushby, J., Dimoska, A., James, C. & Tate, R. L. Impaired mimicry response to angry faces following severe traumatic brain injury (In press).

2. The role of emotion processing in social decision-making.

Investigators: Michelle Kelly, Skye McDonald



Michelle Kelly, PhD candidate

What the study is about:

People with a traumatic brain injury often have problems making decisions in everyday life. It is possible that the difficulties experienced when making

decisions about everyday things, like what to eat and what to wear are very different to difficulties experienced when making decisions about things that affect us emotionally or socially. Decisions that involve our emotions include whether to start or end a relationship, whether to confront a friend about a disagreement or whether to spend all your savings. It is also possible that different areas of the brain are responsible for these two types of decisions and thus damage to one area may only affect one type of decision-making. Previous researchers have developed a card game that tests decision-making; however, it is not clear whether this test is only capable of detecting problems in everyday decision making rather than the decisions that are driven by our emotions. Thus, the current project aims to develop a test that will investigate decision-making in a social situation where our emotions are involved. By developing a test that is able to detect decision-making difficulties in social situations, we may be able to determine what makes these two types of decisions different and whether the addition of a social context makes decisions easier or harder for people with a brain injury.

What we did:

Participants were asked to complete a number of different tasks. The card game asked participants to choose cards from 4 decks. With each card choice, the participant would win some money, but could also lose some. By looking at the choices made we can see if participants were able to learn which decks would win them the most money in the end. The new task that was developed to test decision making in a social situation asked participants to play a game of 'catch and throw' with other participants on the internet. Participants were asked to try to 'win' as many throws as they could.



Also, sometimes we feel as though we are not having an emotional response to a situation yet our body says differently. Using small electrodes attached to the fingertips, we are able to measure very small changes in heart rate and perspiration that represent emotional responses. This may tell us whether an injury to certain parts of the brain may stop people being aware of the changes that are happening in their body when they are making emotionally charged decisions.

What we found:

We have tested 20 participants with a brain injury and 10 participants without a brain injury. At this stage, we have only looked at the data for the new social decision-making task. By grouping the results of all the brain-injured participants, we are able to determine if they played the game in a similar way or in a different way to those participants without a brain injury. The results suggest that the brain-injured participants were less able to determine which players would return the ball the most, and therefore ended up winning less throws overall. Given that the social game is a new task, we need to do a lot more testing with it before we can be sure what this means. Also, we need to compare performance on the social game with performance on the card game to determine whether everyday and emotionally charged decision-making requires different skills. The next study, which started in February, is looking at the

perspiration and heart rate changes associated with social decision making.

We would like to say a big thank you to all the lovely people in Newcastle who have kindly volunteered for our research so far. This important work would not be possible without you.

To find out more about this study:

Contact Michelle Kelly: mkelly@unsw.edu.au

3. Understanding deficits in empathy after Traumatic Brain Injury: The role of affective responsivity.

Investigators: Arielle De Sousa, Skye McDonald



Arielle De Sousa, PhD candidate

What the study is about:

People with TBI often find social situations challenging because they can no longer respond to the emotional state of the people they are with. Many also lack emotional empathy in their social interactions. But are these problems related? The present study addressed this question, following the assumption that if one cannot respond physiologically to another's emotions, the ability to experience another's emotions

(emotional empathy) should also be impaired.

What we did:

The study examined psychophysiological indices of emotional responding, including facial electromyography and skin conductance during exposure to happy and angry facial expressions, in addition to self-rated emotional empathy in 21 adults with severe TBI and 22 control participants.

What we found:

The results confirmed that TBI impacts upon an individual's ability to empathize emotionally. Further, the evidence suggested that the absence of emotional empathy is associated with a loss of mimicry and reduced autonomic arousal to angry facial expressions following TBI. This represents a step towards understanding what processes shape emotional empathy. The results lend support to the conclusion that impaired emotional responsivity, including facial mimicry and skin conductance may be caused, at least in part, by dysfunction within the system responsible for emotional empathy. Nevertheless, further research is essential to clarify this issue, as it may have substantial implications for the impaired social functioning and overall poor quality of interpersonal relationships commonly seen as a consequence of TBI.

4. Angry responses to emotional events: the role of impaired control and drive in people with severe traumatic brain injuries.

Investigator: Skye McDonald

What the study is about:

In many people with traumatic brain injuries, a major problem is the regulation of emotion. People can be irritable and quick to anger, or else very under-aroused and unresponsive to the world around them. While common, such problems are difficult to observe in a clinic setting. In this study we were interested to see whether we could experimentally manipulate mood in people with severe TBI by showing film clips. We were also interested to see whether emotion regulation difficulties could be predicted by conventional neuropsychological measures of "drive" (self-initiation) and "control (self-regulation).

What we did:

We asked 29 people with severe TBI and 20 people without such injuries to watch short film clips of injustice in order to evoke feelings of anger. Participants rated their own mood before and after watching these films. They also completed some conventional neuropsychological tests that measured self initiation and self-regulation.

What we found:

In general, people with TBI responded to the films quite similarly to people without injuries, although the TBI group was much more variable. This was expected as TBI can lead to problems of both over arousal and underarousal. There was a significant association between strong responding to the films (becoming angry and confused) and measures of self-control in the TBI group only. There was no association between lack of responding and measure of drive (self-initiation).

To read more about this study:

McDonald, S., Hunt, C., Henry, J., Dimoska, A., & Bornhofen, C. (In press) Angry responses to emotional events: the role of impaired control and drive in people with severe traumatic brain injury, Journal of Clinical and Experimental Neuropsychology, (In press).

5. Changes in autonomic responses to facial expressions following severe traumatic brain injury.

Investigators: Jacqueline Rushby, Skye McDonald, Sophie Li, Arielle DeSousa, Aneta Dimoska, Charlotte James, Robyn Tate.



Jacqueline Rushby, Post doctoral fellow

What the study is about:

When we recognise emotions in others we experience reciprocal changes in our own body's responses, for e.g. a fearful experience causes our heart rate to increase, conversely observing a fearful experience in others will also cause our heart rate to increase. It is well established that many people with traumatic brain injury

(TBI) have poor recognition of emotional expression in others. Previous research has found that people with TBI display abnormal affective responses [skin conductance (SCR) and heart rate (HR)] when passively viewing emotionally charged material, however, the neuropsychological mechanisms underpinning such deficits are as yet unclear. This study examined whether affective responses can be improved by asking participants to actively attend to emotional expression in others.

What we did:

Eighteen adults with moderate-to-severe TBI and 18 control participants viewed facial expressions from the Ekman and Friesen series while their autonomic responses (SCR and HR) were monitored. Each individual was presented with two blocks of faces (8 angry and 8 happy per block). Participants passively viewed the faces for block one, and were instructed to identify the emotional expression for block two.

What we found:

For the passive task the control group showed an increase in their skin response and heart rate when viewing angry compared with happy faces. Responses in the TBI participants were attenuated compared with controls, and no differences were shown between happy and angry faces (Figure 1, top panel). For the attended viewing task however, responses in the TBI participants were identical to responses in the control group (Figure 1, bottom panel).

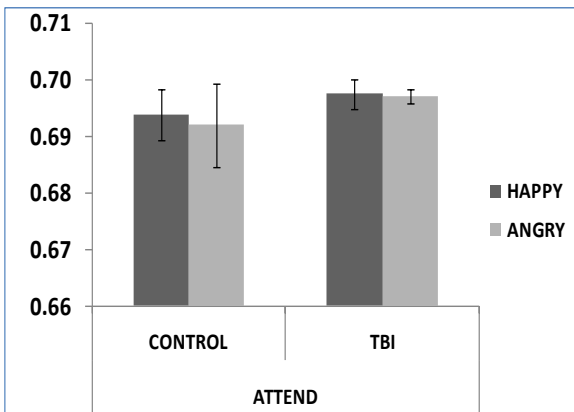
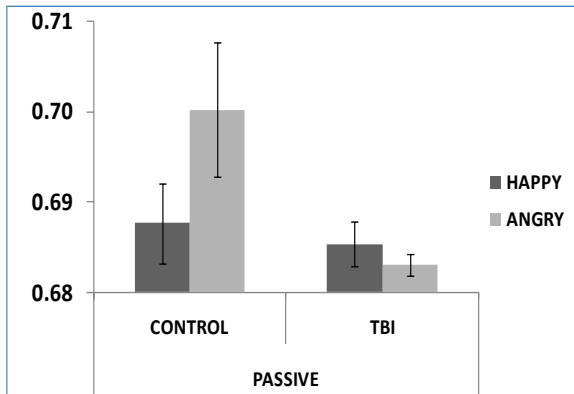


Figure: Skin conductance response when viewing happy and angry facial expressions for control participants and people with TBI.

The results indicate that increasing attention facilitates emotion recognition in people with TBI. We are currently following up this study by investigating which regions of the brain are involved in emotion recognition.

To find out more about this study:

Rushby J.A., McDonald S., Li S., DeSousa A., Dimoska A. James C., Tate R. Changes in autonomic responses to facial expressions following severe traumatic brain injury. (submitted).

6. A meta-analysis of performance in inhibitory control paradigms in adults with traumatic brain injury (TBI).

Investigators: Aneta Dimoska-Di Marco, Skye McDonald, Michelle Kelly, Robyn Tate, Stuart Johnstone.



Aneta Dimoska, Post doctoral fellow

What the study was about:

A main clinical feature of traumatic brain injury (TBI) is impulsivity, which has been linked with an impairment in cognitive processes of inhibitory control by a recent surge in research studies over the last 10 years. We attempted to consolidate the findings across these studies to determine whether particular processes of inhibitory control may be identified as deficient, and thus, become the focus of new targeted remediation programs.

What we did:

We searched the existing pool of research studies from January 1980 to December 2008 and pulled together the results of 39 studies measuring (1) response inhibition – the ability to stop a frequent-habitual response completely, and (2) response interference – the ability to inhibit an incorrect automatic response in favour of the correct response. We restricted our analyses to studies examining deficits in adults, rather than children, who had suffered a TBI. Outcomes analysed included measures of inhibition, as well as measures of response processing speed.

We used a method of statistical analysis known as Meta-Analysis to combine all the results and determine whether differences between control and TBI groups were sufficiently large enough to be clinically relevant. A statistic known as Crohn's Alpha is used to determine whether group differences are small and insignificant (<0.3), or moderate (0.3 – 0.5) to large (greater than 0.5).

What we found:

Across all 39 studies there were a total of 989 adults with TBI and 969 non-brain injured controls that were examined. Results revealed that TBI impaired the process of response inhibition to a moderate degree (alpha = 0.5). In contrast, the size of the TBI-control group difference in Stroop interference control varied dramatically between studies, with some studies showing the opposite effect (i.e. poorer performance in controls than TBIs). This resulted in a small effect size (alpha = 0.05). A closer look at the studies revealed differences between them were due to how interference control was measured.

Response processing speed in the Stroop task was very large (alpha = 0.96).

What does this mean? We now know that TBI causes a moderate impairment in the ability to stop habitual responses (response inhibition) and is worth focusing on in developing new remediation programs. The picture involving response interference is less clear – while some studies found a significant difference, others did not, and this all rested on how they measured the process. Our meta-analysis suggests researchers need to be cautious when choosing between measures of response interference. Finally, our analysis of response processing speed confirmed that this process is impaired to a large degree

following a TBI, and should therefore, continue to be a focus in rehabilitation.

To find out more about this study:

Dimoska-Di Marco A, McDonald S, Kelly M, Tate R, Johnstone S. A meta-analysis of performance in inhibitory control paradigms in adults with traumatic brain injury (TBI). (2010 – Soon to be submitted).

7. A trial on emotion perception in different face tests.

Investigators: Anusha Govender, Michael Hornberger & Skye McDonald



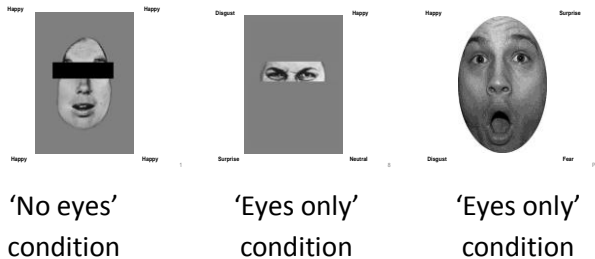
Anusha Govender, Masters Clinical candidate

What the study is about:

In general people look at the whole face to recognize emotions. However, there are some recognition tests which use only the eyes for emotion detection. In this study, we investigated whether there are differences in emotion recognition between seeing only one part of the face (eyes only, no eyes) or the whole face. It is important how we test emotion as different tests give us varying information about how people perceive emotion and perform on such tests.

What we did:

A Microsoft Power Point presentation comprising four conditions was administered to UNSW Psychology 1 students on a computer screen. The four conditions were our designed test of three conditions using Ekman's faces (eyes only, no eyes, whole faces) with a total of 210 photographs and the "Reading the Mind in the Eyes" test with 36 eyes only photographs.



What we found:

We found the whole face to be best in identifying emotions and the "Reading the Mind in the Eyes" test which was seen to be "an advanced test" no different in identifying emotions. The study also found that the "no eyes" condition' provided more information about an individual's emotional state than eyes only photographs as more available face features such as the nose, cheeks, lips and chin assisted in recognition of emotions. Further, positive emotions were better identified than negative emotions in all face conditions and increasing in accuracy from the "eyes only" condition to the "no eyes" condition and best in the "whole face" condition. Negative emotions such as sadness and anger were better identified in photographs with eyes only than photographs with no eyes, reflecting that the lower face is just as important in recognition of fear responses as the eyes only area.

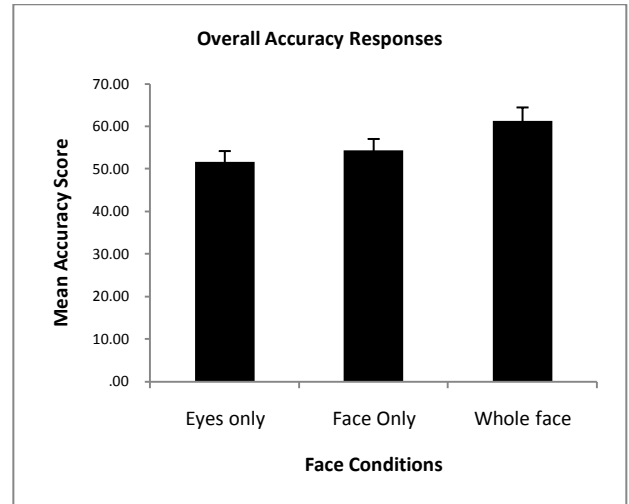


Figure: Overall mean accuracy scores in each of the face conditions.

8. Can elderly people with MCI improve their cognitive functioning by doing regular computer-based brain exercises?

Investigators: Maurice Finn, Skye McDonald



Maurice Finn, PhD Candidate

What the study is about:

Elderly people diagnosed with Mild Cognitive Impairment have a much higher risk of developing a dementia compared with normal older adults. Unfortunately there

are no effective means of ameliorating cognitive decline for this group at present. Many studies that have been conducted have focused on teaching older people with cognitive impairment how to improve their recall by using memory strategies. The results to date have been disappointing, possibly because the learning processes required to learn and implement these strategies in daily life are compromised. Another problem with this approach is that a narrow focus on memory neglects other cognitive functions (for example, attention and processing speed) that play an important role in new learning and that are required for successful completion of everyday activities. Some researchers have suggested that learning can be improved via the use of targeted computer-based exercises to stimulate brain plasticity processes. Preliminary studies have indicated there may be some merit in this approach.

What we are doing:

The research is being conducted as part of a Ph.D in the School of Psychology at UNSW in conjunction with the Geoff and Elaine Penney Ageing Research Unit in the Department of Aged Care & Rehabilitation at Royal North Shore Hospital. Participants (N=16) have been recruited from the Memory Clinic and Geriatric specialty outpatient clinics. A range of cognitive functions are trained including attention, processing speed, visual and spatial memory and executive functions. The computerised cognitive training package was provided by Lumosity Inc. Participants completed 30 training sessions over a period of 8-12 weeks.

9. Reading a smile (and other great expressions): Development of a new program for remediating emotion perception disorders.

Investigators: Cristina Bornhofen and Skye McDonald



Cristina Bornhofen, Post doctoral fellow

What this project was about:

Difficulties recognising emotions in others are very common in a range of clinical disorders including traumatic brain injury, schizophrenia, autism spectrum disorders and stroke. There is also increasing evidence that such disorders are treatable. Despite this there are very few resources available for therapists interested in providing such treatment. This project aimed to develop a comprehensive, detailed, stimulating program to address emotion perception deficits, including week by week instructions for therapists and a rich resource of stimuli to facilitate treatment. The program has proven to be effective in improving emotion perception in people with traumatic brain injury in previous work (see references below).

Outcome:

The outcome is an exciting treatment package with colourful stimuli, board games and a manual that is based upon evidence of efficacy with step by step instructions.



To read more about this or purchase the treatment program, go to the ASSBI resources website:

<http://www.assbi.com.au/assbiresources.html>

Bornhofen, C. & McDonald, S. (2008) Comparison of two approaches to remediating emotion perception deficits after severe traumatic brain injury. Journal of Head Trauma Rehabilitation, 23,103-115.

Bornhofen, C. & McDonald, S. (2008) Evaluation of an emotion treatment program for people with severe traumatic brain injury, Neuropsychological Rehabilitation, 18, 22-44

Studies in progress and new research starting in 2010

10. Social cognition in people with Aspergers Syndrome.

Investigators: Danielle Mathersul & Skye McDonald

11. Exploring new ways to remediate deficits in emotion perception.

Investigators: Skye McDonald, Robyn Tate, Leanne Togher, Cristina Bornhofen, Ali Gowland and Therese English.

What this study is about:

We have already demonstrated that remediation of emotion perception after traumatic brain injury can be successful. What we are now interested in is whether specific strategies can be refined that improve remediation further, or that are particularly useful for people with different kinds of problems. In 2009 we commenced a treatment trial to determine whether we can improve people's ability to understand that sometimes when communicating, people can say one thing and mean another (such as when being sarcastic) and how to recognise this. This trial is continuing in 2010. We are also going to examine whether a short intervention can assist with understanding emotion in voice. We are looking for research participants who have experienced difficulties understanding social situations and who would like to assist us in this new research. We are especially seeking people with severe traumatic brain injuries who experienced their injury 9 months ago or longer and are now living in the community.

12. Communication disorders after brain injury.

Investigators: Ali Gowland & Skye McDonald



Ali Gowland, Research Assistant

We are preparing a new set of studies to examine the effects of brain injury on communication. Adults with brain injury can experience difficulties in understanding others and making themselves understood, especially when their injuries affect the frontal lobes. These communication difficulties happen regardless of the person's language ability, which generally remains the same as it was before the injury. We want to find out more about what is causing these communication difficulties.

We are currently developing novel tasks and materials to use in these studies, and we'd love to hear from adults with acquired brain injury who would like to help us when we're ready to start testing later this year.

13. Norms for adolescents on TASIT

Investigators: Therese English & Skye McDonald.



Therese English, Research Assistant

What the study is about:

Some people who have had a traumatic brain injury experience difficulties perceiving

emotions and interpreting social situations. However, there are not many tools currently available that can assess these types of problems, particularly in children and adolescents.

Professor Skye McDonald has developed a video-based task that is designed to identify deficits in emotional and social perception - The Awareness of Social Inference Test (TASIT). TASIT measures the ability to recognise emotions, read social cues and understand inferences. It has been widely tested on a range of adults, both with and without a brain injury, so we have lots of data on how these groups perform on the task. Our next step is to find out how young people with and without a brain injury perform on TASIT, and to see whether it is also an effective assessment tool for this age group.

What we are doing:

We are visiting secondary schools around Sydney and working with teenagers between the ages of thirteen and nineteen. The students watch TASIT in the classroom and answer questions about the emotional states and social interactions portrayed in each video clip. With the help of Sydney Children's Hospital, we are also administering TASIT with teenagers who have had a brain injury at some point during their childhood or adolescence. By comparing the data from the two groups, we will be able to find out if TASIT is an effective way of identifying emotion and social perception problems in young people who have had a brain injury.

Volunteers welcome:

We're still looking for young people (aged thirteen to nineteen) with and without a brain injury to help us with this study. We would also be very interested to hear from you if you can help us make contact with schools or other youth groups where we can administer TASIT to larger groups of young people!

14. Facial mimicry of "unseen" emotional expressions

Investigators: Jacqueline Rushby, Skye McDonald, Ali Gowland & Therese English

What the study is about:

One of our research studies last year examined facial mimicry in adults with traumatic brain injury (see study 1, page 4 for more details). That study found that healthy adults mimicked both happy and angry facial expressions, but adults with a traumatic brain injury only mimicked happy facial expressions.

This is a follow-up study to explore what happens to these facial mimicry effects when the viewer is not consciously aware that they are seeing a facial expression. Previous research has shown that people still display facial mimicry even when they're shown a facial expression for such a short amount of time that they're not consciously aware of what they have seen. We want to examine whether people who have had a brain injury mimic emotional facial expressions under these "sub-conscious" conditions.

What we are doing:

We will ask people with and without a traumatic brain injury to view happy and angry faces, using a technique that prevents people from being consciously aware that they're viewing these faces. We will monitor facial muscle activity during the task, so that we can compare mimicry in adults with and without a traumatic brain injury. We hope that this will help us to understand more about the mechanisms that underlie emotion perception deficits in adults with traumatic brain injury.

Recently published papers and conference abstracts

Peer reviewed journal articles:

de Sousa, A., McDonald, S., Rushby, J., Li, S., Dimoska, A. & James, C. (In press) Understanding deficits in empathy after Traumatic Brain Injury: The role of affective responsivity Cortex

Dimoska, A., McDonald, S., Pell, M.C, Tate, R.L, & James, C.M. (In press) Recognising vocal expressions of emotion following traumatic brain injury: Is the 'what' more important than the 'how'? Journal of the International Neuropsychological Society

McDonald, S., Hunt, C., Henry, J., Dimoska, A., & Bornhofen, C. (In press) Angry responses to emotional events: the role of impaired control and drive in people with severe traumatic brain injury, Journal of Clinical and Experimental Neuropsychology

McDonald, S., Bornhofen, C. & Hunt, C. (2009) Enhancing emotion recognition after

severe traumatic brain injury: the role of focused attention and mimicry. Neuropsychological Rehabilitation, 7, 1-9.

McDonald, S., Li, S., De Sousa, A., Rushby, J., Dimoska, A., James, C. & Tate, R. L. (In press) Impaired mimicry response to angry faces following severe traumatic brain injury. Journal of Clinical and Experimental Neuropsychology.

Conference Presentations:

Kelly, M.A., McDonald, S., Rushby, J., & Kellett, D. (2010) Identifying Impairments in Social Functioning Using a Novel Task (Abstract), ASSBI Annual Conference, Gold Coast, 2010, Brain Impairment (In press)

Kelly, M.A., McDonald, S., Rushby, J., & Kellett, D. (2010) The Psychophysiology of Decision Making: Attempting to Identify Impairments in Social Functioning Using a Novel Task. Presented at: Australasian society for Psychophysiology Annual Conference, Newcastle, 27th-29th November, 2009. Journal of Clinical EEG and Neuroscience (In press)

Rushby J.A., McDonald S., Li S., DeSousa A., Dimoska A. James C., Tate R. (2010) Changes in autonomic responses to facial expressions following severe traumatic brain injury: Presented at: Australasian society for Psychophysiology Annual Conference, Newcastle, 27th-29th November, 2009. Journal of Clinical EEG and Neuroscience (In press)

McDonald, S., Li, S., De Sousa, A., Rushby, J., James, C. & Tate, R. (2010) Exploring the mechanisms behind poor emotion perception in people with severe traumatic brain injury: the role of mimicry (Abstract), ASSBI Annual Conference, Gold Coast, 2010, Brain Impairment (In press)

McDonald, S., Li, S., De Sousa, A., Rushby, J., James, C. & Tate, R. (2010) Loss of automatic mimicry to angry faces following severe traumatic brain injury INS 2010 meeting Acupulco. Final program: http://www.the-ins.org/includes/spaw2/uploads/files/INS10_Linked.pdf, 217.

Kelly, M., McDonald, S. Kellett, D. (2010) Decision Making after Traumatic Brain Injury: Attempting to Identify Impairments in Social Functioning Using a Novel Task, INS 2010 meeting Acupulco. http://www.the-ins.org/includes/spaw2/uploads/files/INS10_Linked.pdf, 72.

Dimoska, A., McDonald, S., Pell, M.C., Tate, R.L. and James, C.M. (2009) Disorders of recognition of emotion in speech after traumatic brain injury: Quality versus Content. (Abstract) Paper presented at the 32nd Brain Impairment Conference, Sydney, 2009, Brain Impairment, 10, 108

McDonald, S. & Saad, A. H. (2009) Examining possible causes of poor social behaviour after traumatic brain injury: Stereotypic social knowledge and its regulation (Abstract) Paper presented at the 32nd Brain Impairment Conference, Sydney, 2009, Brain Impairment, 10, 96

Togher, L., Power, E., Tate, R., McDonald, S. & Rietdijk (2009) Inter-rater reliability of the Measure of Support in Conversation and Measure of Participation in Conversation (Kagan et al., 2004) modified for people with Traumatic Brain Injury (TBI) and their communication partners, CAC 2009

Green, M., Sparkes, A., James, C., O'Donnell, M. & McDonald, S. (2009) Cognitive Emotion Regulation in Schizophrenia: Associations with Neurocognition and Social Perception 2009 Society of Biological Psychiatry conference.

Green, M., Sparkes, A., Mitchell, P. & McDonald, S. (2009) Social perception and emotion regulation in bipolar disorder and schizophrenia (awarded best poster in session of 200 posters) Congress of the World Federation of Biological Psychiatry, 2009.

Green, M., Sparks, A., Lino, B., O'Donnell, M., Mitchell, P. & McDonald, S. (2009) Distinct associations between social cognition and emotion regulation in bipolar disorder and schizophrenia Abstract presented at the APSR 2009 Meeting.

Rushby, J.A., McDonald, S., Li, S., DeSousa, A., Dimoska, A. James, C., & Tate, R. (2010). Automatic responses to facial expressions following severe traumatic brain injury. (Abstract), ASSBI Annual Conference, Gold Coast, 2010, Brain Impairment (In press).

Mathersul, D., & McDonald, S. (2010). Individuals with Asperger's impaired on complex but not simple tasks of Theory of Mind. (Abstract), ASSBI Annual Conference, Gold Coast, 2010, Brain Impairment (In press).

Kelly, M.A., McDonald, S., Rushby, J.A., & Kellett, D. (2010). Identifying Impairments in Social Functioning Using a Novel Task. (Abstract), ASSBI Annual Conference, Gold Coast, 2010, Brain Impairment (In press).

Farewell and Good Luck!

We are sorry to have said goodbye to our post docs, Dr. Cristina Bornhofen and Dr. Sophie Li, and wish them all the best in their new positions.

Many thanks to everyone
who has assisted us in our
research and we very
much look forward to
seeing you again soon.

