

## 2007 Clinical Neuropsychology Newsletter

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We are very happy to welcome you to our third research newsletter detailing our research in brain injuries and disorders. 2007 was a busy year—so busy that we are only now sending out its newsletter! Much exciting work was done by the Neuropsychology Group at UNSW, lead by Professor Skye McDonald, over the past 12 months. We hope that the following pages provide a clear picture of this work.

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.

This type of research is particularly important because many people who have acquired a brain injury find some aspects of social interaction difficult. These difficulties often impact self-esteem, mood, confidence in social situations, rehabilitation efforts and quality of life. Our research aims to increase our understanding of how social and emotional functioning is disrupted by brain injury to improve rehabilitation techniques and practical support to those with a brain injury.

Over the past year a number of research projects have commenced and a number have been completed. This newsletter presents **twelve** different studies. Each study is described in terms of *what it was about*, *what we did* and *what we found*. It is important to mention that people with acquired brain injuries experience a range of difficulties that makes them quite a varied group. Although this is the case, our research typically groups together those with a

certain condition as it is impossible to recruit participants who all have exactly the same type of injury. Doing this allows for us to draw conclusions about the type of difficulties the group as a whole experience, but does not highlight unique difficulties experienced by any one individual. We recognise that it is a combination of the group and individual pictures that will best contribute towards our understanding of brain injury. For this reason, we are planning to begin several single case studies this year as well as continue with further group research.

Where studies have been submitted for publication, the reference to the article and the target journal 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.

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, and Shane Darke at the National Drug and Alcohol Research Centre.

Finally, our biggest thanks goes 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 their 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**  
**UNSW Clinical Neuropsychology Research team leader**

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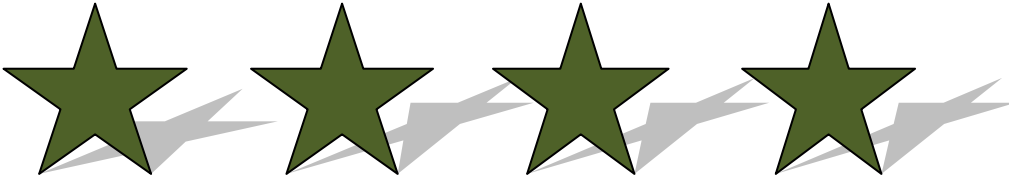
**Post-doctoral fellows Cristina Bornhofen, Sophie Li (above) and research assistant Charlotte James (below)**



**Call for participants!**

**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. Please contact us  
if interested on: 9385 3310**



# Research Studies

## 1. Can we teach better social skills?

**Investigators:** Skye McDonald, Robyn Tate, Leanne Togher, Cristina Bornhofen, Paul Gertler, Esther Long, Rebecca Bowen

### What the study is about

We reported the preliminary findings for this study in our newsletter last year. This is a very large study that took 3.5 years to conduct. In this study we aimed to develop and evaluate a treatment program for reducing disorders in social skills following severe TBI. We aimed to enhance the TBI individual's ability to create a good "first impression" on meeting new acquaintances – e.g., potential employers, work colleagues and social acquaintances – and to engage in behaviour that is mutually rewarding, for themselves and their social partners.

### What we did

We developed an integrated treatment approach that addresses cognitive, behavioural and emotional problems, each of which affect social skills in many people with TBI. We then evaluated its effectiveness using a randomised control trial over three successive waves, the first recruiting people with TBI from Liverpool Brain Injury Unit, the second recruiting people from Ryde Brain Injury Unit and the third recruiting people from Westmead Brain Injury Unit. In each wave 15-20 people with TBI were randomly allocated to: (1) the treatment, (2) a social group that has no particular treatment focus or (3) a waitlist. The treatment group and the social group attended weekly group and individual sessions over a twelve-week period.

Before treatment commenced all participants were assessed on three occasions on a range of measures to evaluate their social skills. The

measures we want to report in this newsletter were (1) ability to recognise emotional expressions in videoed vignettes (TASIT) and (2) social skills that participants demonstrated when chatting casually to a stranger. To score these social skills we filmed the conversations and asked two psychologists – who had never met the participants and who did not know whether they received treatment or not - to rate them on two dimensions: Partner Directed Behaviour focusing upon: Use of Reinforcers, Self-Centred Behaviour and Partner Involvement Behaviour and Personal Conversational Style focusing upon: Use of Humour, Social Manners and Self Disclosure. Each scale was scored from 1 (very inappropriate) through to 3-5 ("normal range") to 7 (very appropriate).

After treatment (or the social group) was over, all participants were again assessed. People on the waitlist were asked to wait for treatment until assessments were over.

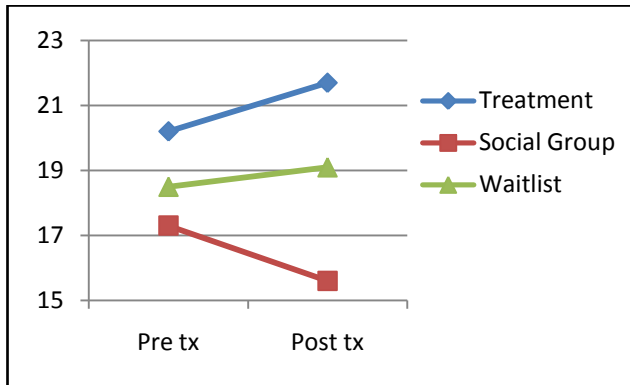
Treatment of social skills including social perception occurred via 12 two-hour weekly group sessions supplemented by weekly individual sessions designed to support skills learning in groups and address individual issues in terms depression, anxiety etc.

In all, 51 participants were recruited for this study. All participants had experienced severe traumatic brain injuries and were well past the acute phase of recovery (on average they were 7 years post injury). A total of 39 completed all phases of the study. 13 were allocated to treatment, 13 to social group and 13 to waitlist control condition.

### What we found

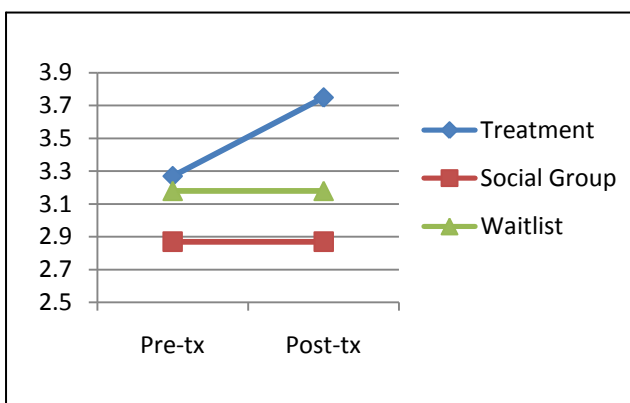
Feedback from clients who have attended the treatment groups has been very positive. People generally enjoyed the groups and have felt that their ability to participate socially has improved as a result. People who attended the social groups had a good time too!! We also found

that there were significant improvements on social perception and social skills. Specifically those who received treatment improved in their ability to recognise basic emotional expressions whereas those who did not receive treatment remained the same (see graph below).



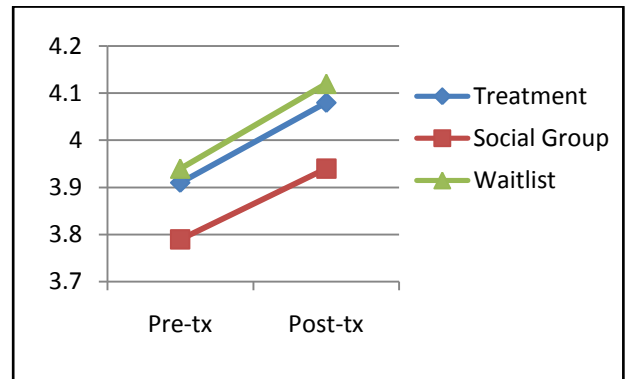
**Figure 1.** Average performance on emotion recognition (TASIT) pre- and post-treatment for the three groups.

We also found that the treatment group improved significantly on partner directed behavior after treatment whereas the other two groups did not. An example of improvement on partner directed behavior is shown in the Figure 2 below.



**Figure 2.** Mean of 3 pre- and 3 post-treatment ratings for the *Partner-Involvement Behaviour* subscale of the BRISS-R averaged across 2 raters and across encounters with male and female actors.

This was not the case for the Personal Conversational Style. We had some difficulties getting consistent ratings on this scale so it may be more of a problem with the measure than a lack of change. One of the subscales, Social Manners, is shown here.



**Figure 3.** Mean of 3 pre- and 3 post- treatment ratings for the 3 subscales of the *Social Manners* subscale of the BRISS-R averaged across 2 raters and across encounters with male and female actors.

There were a number of questionnaires given to family members that were used to see whether improvements in social functioning were noticeable more generally. Disappointingly, these did not reveal any change. There are many reasons for this – but a major reason is probably that life with a brain injury is complex, and improved social skill does not guarantee changed circumstances for everyone.

Personal accounts from participants regarding treatment reflected many positive gains. For example, before undergoing therapy, one 25-year old male participant reported that he felt awkward and “lost” in social situations, which led him to avoid social situations outside his family. This pattern had become somewhat of a burden to his older brother, on whom he tended to rely most. After completing treatment, he described feeling more confident in establishing new friendships independently, and he had begun socializing with old and new

contacts outside of his family. His brother had noted a positive difference, and their relationship had improved. He had also enrolled in a part-time technical training course, which was going well. Overall, he reported, feeling more engaged in life and optimistic about his future.

Another participant, a 56-year old woman described prior to treatment how angry and frustrated she became in social interactions. As a result, she had become hostile towards many of her family members and acquaintances, and experienced increasing social isolation. After therapy, she reported feeling “more in balance” with herself and others, and that she could better negotiate social situations without growing upset. She and her husband were enjoying doing more things together, including socializing, and her “sense of humour was back”. She had joined a local gym where she was meeting new people whose company she enjoyed.

**To read more about this study:**

A paper detailing this study has been submitted and is currently under review:

McDonald, S., Tate, R., Togher, L., Bornhofen, C., Long, E., Gertler, P. Bowen, R. The efficacy of social skills treatment for addressing deficits in social skills after severe traumatic brain injury.

The results have also been presented at two conferences, one in Australia and one in the USA:

McDonald, S., Tate, R., Togher, L., Bornhofen, C., Gertler, P., Long, E., Bowen, R. and McGregor, F. (2007) Outcome of a randomised controlled trial to

remediate social skills after severe traumatic brain injury, Annual Meeting of the International Neuropsychological Society, Portland 2007. Journal of the International Neuropsychological Society, 13 (S1), 272.

McDonald, S., Tate, R., Togher, L., Bornhofen, C., Long, E. Gertler, P. & Bowen, R. (2006) Treating social skills deficits following traumatic brain injury – preliminary results from a randomized controlled trial. (Abstract). 2006 Annual Meeting of the Australian Society for the Study of Brain Impairment. Brain Impairment, 7, 69.



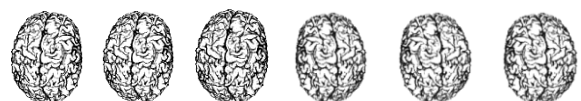
interested in your conversation



NOT interested in your conversation

**Left and below:**

Two cartoons from the social skills treatment manual which was used in the study. This manual will be published and made available in the coming months.



## 2. Can mimicking and focusing on emotional expressions improve recognition?

**Investigators:** Skye McDonald, Cristina Bornhofen, Christopher Hunt

### What this study is about:

Many people with severe traumatic brain injury (TBI) have difficulties recognising emotions in others. We have done some work already that suggests that this can improve with treatment, but we are still unsure about whether there are particular techniques which work best. In this study we examined two remediation strategies (1) focusing attention on relevant aspects of the facial expression and (2) mimicking the facial expression.

### What we did

22 people with chronic, severe brain injuries and 32 people without injuries from similar social backgrounds were asked to label 6 basic emotions spontaneously. Following this they were asked to recognise another set of expressions using two different strategies (1) focusing on particular aspects of the face (e.g. the eyes, the mouth) and (2) mimicking the facial expression before trying to recognise it.

### What we found

Surprisingly we found that the TBI group were as good as the control group when recognising expressions spontaneously. Consequently we selected 15 people with TBI who were poorer than average at this task and 15 control participants who were similarly poor. The "Focus" instruction improved scores for control participants but not participants with TBI. The "Mimic" instructions resulted in very little improvement for both groups. Those in the TBI group who fared best with the "Focus" instructions were those with good abstract

reasoning and flexibility. No such association was seen for control participants. Nor was improvement with the "Mimic" strategies associated with cognitive variables in either group. From this it seems that the kinds of cognitive difficulties people experience are really critical to consider when choosing the best remediation approach. Mimicry and focusing may yet prove to be powerful techniques for people with particular cognitive strengths and weaknesses. We are conducting further research in this area (see below).

### To read more about this study:

This study was presented at an Australian conference and is also submitted to a conference in Brazil in 2008:

McDonald, S. & Bornhofen, C. (2007) Does mimicry assist people with TBI recognise facial expressions? Abstracts of the 2007 Annual conference of the Australian Society for the Study of Brain Impairment, *Brain Impairment*, 8, 63.

There is also a paper currently under review:

McDonald, S., Bornhofen, C. & Hunt, C. Enhancing emotion recognition after severe traumatic brain injury: the role of focused attention and mimicry.

## 3. Do people with TBI have difficulty accessing social knowledge?

**Investigators:** Abdul Saad and Skye McDonald

### What the study was about

Recent research has found that some brain-injured people have difficulty non-verbally accessing some forms of social knowledge, such as stereotypes, and that this may account for some of the social problems people with TBI experience. This study was designed to see whether people with TBI do indeed have difficulty non-verbally accessing a particular

form of social knowledge – gender stereotype (attributing masculine features to men and feminine features to women).

### What we did

We asked 14 adults with TBI to come to the University of NSW for this study. Fourteen adults without brain injuries also took part in the study. A non-verbal measure of gender stereotyping, the Implicit Association Test, was administered to all participants, as well as two verbally based gender stereotyping questionnaires. All participants were also given tests of attention, mental processing speed, mental flexibility, and non-verbal reasoning.

### What we found

People with TBI were not found to be deficient in their ability to access non-verbal social knowledge, and their responses on both the verbal and non-verbal measures of gender stereotyping were more closely matched, compared to the non-brain injured adults. The TBI participants did show significant deficits on the measures of attention, mental processing speed, and mental flexibility. These results indicate that non-verbal social knowledge is not dramatically affected in TBI, and that social skills problems may be better predicted by problems with attention, mental processing speed, and mental flexibility.



**Abdul Saad, chief  
investigator on  
Study 3**

## 4. Why do some people with traumatic brain injury have difficulties with social problem solving?

**Investigators:** Brooke Adam and Skye McDonald

### What the study was about

Previous research by ourselves and others has indicated Traumatic Brain Injury (TBI) may lead to impairments in recognizing emotions in others and also problems in thinking about things from someone else's point of view. This study examined whether adults with TBI demonstrated social problem solving deficits relative to control participants. It also investigated whether there is a relationship between impaired social problem solving skills, theory of mind (ToM) i.e. the ability to interpret the mental states of others, emotion identification and executive functioning (e.g. planning and inhibition), following TBI.

### What we did

14 participants with TBI were invited to UNSW to take part in the study. A further 14 participants without TBI were recruited to the study. A video-based task of social problem solving skills, the Assessment of Interpersonal Problem Solving Skills, was administered to all participants, as well as a measure of Theory of Mind (ToM), i.e., the ability to interpret the mental states of others, which is thought to be critical to understanding social behaviour. Participants also completed tasks of emotion identification and naming, the 'Ekman Faces.' Participants were also administered tasks of planning and problem solving, verbal learning, working memory and processing speed.

### What we found

Preliminary results showed that TBI participants' social problem solving, ToM, emotion identification and executive function were



poorer compared to control participants. Further, we found that these abilities are interrelated for control participants, but not for TBI participants. Data collection is still underway.

## 5. Do people with TBI react normally to seeing other people's facial expressions?

**Investigators:** Melissa Herdy and Skye McDonald

### What the study was about

The study was designed to examine whether all people with traumatic brain injury have a normal reaction to someone else's emotion, or whether some differ in this regard. We also wanted to see whether people who have suffered a traumatic brain injury and people with depression show a different kinds of reactions when they are watching the facial expression of another person.

### What we did

We asked 25 people (11 control, 9 TBI and 5 with low mood or dysphoria) from the community to watch pictures of faces on a computer screen. While this was happening, we took measurements of heart, skin conductance and muscle activity. We compared the amount of activity in the 1 second before the pictures were shown to the amount of activity while viewing the pictures.

### What we found

It is important to note that there were not enough participants in the study to be able to draw confident conclusions about the groups. There was a lot of variability between participants in their reactions to the facial

expressions of others. Some people with traumatic brain injury showed a normal response, while others didn't. As such, we did not find a significant difference between the groups although there was a trend in the group of people with low mood towards a relaxation of muscles when viewing happy faces, which was different to the control and TBI participants. Further research is now being conducted to add more information to these results.



**Melissa Herdy,**  
chief  
investigator on  
Study 5.

## 6. Does anxiety disrupt our ability to remember to do everyday tasks?

**Investigators:** Isobella Choi and Skye McDonald

### What the study was about

Prospective memory, i.e. our ability to remember to carry out tasks, is extremely important in our daily life. It allows us to manage work activities (e.g. remembering to attend a meeting at 10am), coordinate social relations (e.g. remembering to book a table for dinner) and handle health-related needs (e.g. remembering to take medication). Anxiety impairs central executive resources that are important for performing some prospective memory tasks. Past studies using laboratory paradigms have suggested that anxiety has negative effects on prospective memory performance. However, laboratory paradigms

often do not capture all aspects of everyday prospective memory tasks. Therefore we used a task that closely simulates daily prospective remembering to study the effects of anxiety on different prospective memory tasks.

### What we did

Participants in this study were all university students. 30 students were identified as having high anxiety, and 30 with low anxiety. They were told that their performance will be compared to other participants to ensure state anxiety differences between groups. Then they played a computer game called “Virtual Week” which simulates a day in real life with activities to carry out, decisions to make, and things to remember to do. Virtual Week includes different sorts of everyday prospective memory tasks, and measures different responses towards the tasks. After three rounds of the game they completed a short questionnaire about Virtual Week.

### What we found

Anxiety did not impair prospective memory in this study. Nor did it impair prospective memory tasks with high demands on the central executive. Furthermore, the high anxiety participants did not achieve comparable performance to their low anxious peers by using more effort. These results suggest that anxiety has no influence on our ability to carry out everyday prospective memory tasks.

## 7. Why does damage to the right side of the brain after stroke interfere with social understanding?

**Investigators:** Ingerith Martin and Skye McDonald

### What this study was about

Many people who suffer a stroke affecting the right hemisphere of the brain have difficulty understanding the social meanings of everyday conversations, especially irony and sarcasm. This is despite having normal language ability. Several reasons have been proposed for this (1) they have a difficulty understanding what another person is thinking (known as Theory of Mind) (2) they have difficulty pulling information together (Weak Central Coherence) or (3) they have rigid, concrete thinking (poor Executive function). This study attempted to determine which explanation was most likely.

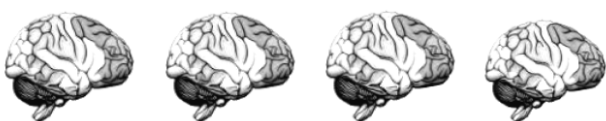
### What we did

Twenty-one people with damage to the right hemisphere of the brain as a result of stroke and 21 age-matched controls were assessed on stories that assessed theory of mind, simple jigsaws that tested the ability to see global rather than local information (central coherence), stories that assessed general (non mental) inference (executive function) as well as the comprehension of irony.

### What we found

Verbal ability, general (non-mental) inferential reasoning and complex (second order) theory of mind were all important factors that influenced whether the participants understood irony.

None of these measures, however, either in isolation or combined, completely explained the poor performance of right hemisphere stroke



patients on this task compared to control participants. The mystery of why right hemisphere damage interferes with conversational understanding continues...

#### To read more about this study:

Martin, I. & McDonald, S. (2006) That can't be right! What causes pragmatic language impairment following right hemisphere damage? [Brain Impairment](#), 7, 202-211.

## 8. Do we have a specialised system in the brain for processing threat?

**Investigators:** Lauren Mowszowski and Skye McDonald

#### What the study was about

Research has shown that humans have a specialised system in the brain that allows us to recognise and process threatening signals (such as pictures, words and facial expressions) faster and more effectively than non-threatening signals. Research into specialised processing of threat is important because it suggests that humans have developed special features that increase our chances of survival when faced with dangerous situations. People with brain impairments and injuries, or psychological conditions such as anxiety, may react differently to threatening signals because of changes to this specialised processing system. This study aimed to explore this specialised system by using a different type of test to those used in other studies, as well as investigating whether the system works even more efficiently for people who are highly anxious.

#### What we did

78 first-year psychology students at UNSW were shown a series of rapidly presented facial expressions in a computer task. Participants

then had to identify which expressions they had seen in each trial of the experiment. In some trials, the series of expressions included two identical expressions, whilst in others, the series included two different expressions. For each of those conditions the identical or different expressions were either threatening (angry or fearful) or non-threatening (happy or sad) expressions. Participants also completed the STAI, a measure of state anxiety (current anxiety level), after being told by the experimenter that their performance on the computer task would be compared to other participants'. This mild manipulation was intended to raise participants' state anxiety slightly.

#### What we found

The task used in this study is called 'repetition blindness'. According to this concept, for trials where the two facial expressions were identical, participants would only report having seen one instance of that expression – in other words, they would be 'blind' to the repetition of that facial expression within the same trial. The repetition blindness phenomenon has never been tested with facial expressions in published research, however this study showed that repetition blindness is present for facial expressions. The task has also never been used to study specialised processing of threat. This study found that although repetition blindness was shown for identical expressions, the effect was smaller when the identical expressions were threatening (angry or fearful), than when expressions were non-threatening (happy or sad). This result provides further evidence of a specialised processing system in the brain for threatening signals compared to non-threatening signals. Using facial expressions as stimuli is important because it shows that when people interact, angry expressions that suggest aggression and fearful expressions that suggest danger are processed more quickly than happy or sad expressions, which show less important information in terms of possible harm and

survival. This study did not find that threatening expressions were processed differently for anxious participants, however this may be because of problems with the way the experiment was conducted. The results of this study may be important for socially anxious individuals, who are generally more alert towards social cues like facial expressions. This type of task could also be used to explore whether the specialised system for processing threat is altered by brain injury or impairment.

## ***Watch this space !!!*** **Research underway**

### **9. Can elderly people with MCI improve their ability to learn by doing regular computer-based brain exercises?**

**Investigators:** Maurice Finn and Skye McDonald

#### **What the studies are 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 treatments available for this group at present. The few studies that have been conducted have focused on teaching older people with varying degrees of cognitive impairment how to improve their recall by using memory strategies. The results to date have been mixed, possibly because the learning processes required to learn and implement these strategies in daily life are compromised. Some researchers have suggested that learning can be improved via the use of targeted computer-based exercises to stimulate

brainplasticity processes. Preliminary studies have indicated there may be some merit in this approach.

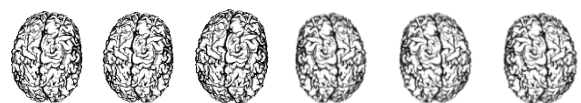
#### **What we are doing**

The studies are being conducted as part of PhD research in the School of Psychology at UNSW in conjunction with the Department of Aged Care & Rehabilitation at Royal North Shore Hospital. Participants will be drawn from the Memory Clinic and Geriatric outpatient clinics. Specialist memory training software is available and we are currently negotiating with suppliers over access.

#### **What we will find**

The main question we are addressing is can the ability to learn and retain new information be enhanced in a sample of elderly people with MCI? The first study will examine the effectiveness of the computer-based exercises in improving cognitive functioning when compared with wait-list controls. The second study is more ambitious in scope and will combine the computer-based exercises with education on memory strategies. It will look at

the effect of this intervention on various aspects of the learning process – performance on a novel learning task, encoding new information into memory, retaining that information over time and discriminating it from similar kinds of information. It will also seek to measure the generalisation of learning to everyday settings and tasks. It is hoped that the findings will lead to new treatments for this vulnerable group of elderly people.



## 10. Are empathy deficits following TBI associated with impaired emotional responsivity?

**Investigators:** Arielle De Sousa and Skye McDonald

### What the study is about

People with TBI often find social situations challenging because they can no longer understand and respond to the emotional state of the people they are with. Many also lack normal empathic responses in their social interactions. But are these problems related? Specifically, emotional processing difficulties including the inability to experience an emotional response to another's situation or display of emotion may be attributable to changes in empathy following TBI. As such, this study was designed to determine whether deficient empathic processing displayed by people with TBI is related to deficits in their ability to respond physiologically to emotionally salient stimuli.

### What we are doing

The study is currently being conducted here at the School of Psychology, UNSW. As can be seen in the figure below, metal electrodes are positioned onto the participants face – two on their forehead and two close to their cheek. Probes are also placed onto participants' fingers (to measure skin temperature and heart rate). Slides of faces displaying different expressions are then presented. The participants are instructed to passively view the faces. Additionally, participants are shown a series of pictures exhibiting pleasant, unpleasant and neutral content, and are asked to rate the degree of pleasure and arousal experienced. Finally, participants are required to complete four empathy questionnaires asking them about

their thoughts and feelings in a variety of situations.



**A participant modelling the electrodes used in Study 10**

### What we think we will find

While we don't know exactly what we will find as yet, we do know that the results of this study will help extend our knowledge of the emotional processes underlying empathy, as well as improve our understanding and effective treatment of empathic deficits in TBI.



**Arielle De Sousa, chief investigator on Study 10**



## NEW RESEARCH PROJECTS COMMENCING IN 2008

### 11. Exploring the impact of deficits in emotional processing after brain injury and ways to remediate this

**Investigators:** Skye McDonald (Psychology, UNSW), Robyn Tate (Rehabilitation Studies Unit, University of Sydney), Leanne Togher (Speech Pathology, University of Sydney) and Cristina Bornhofen (UNSW).

Being able to understand facial expressions is critical to social competence. We read the emotions of others in order to respond to them and to monitor their reactions to us. As our previous research shows, for many people with severe traumatic brain injuries (TBI) this capacity is lost. It is not surprising therefore that difficulties in social skills are frequently reported in this group along with social isolation and a general decline in relationships.

We have received new funding from the National Health and Medical Research Council to conduct a series of studies to look carefully at ways emotion processing breaks down after TBI and ways in which this can be remediated. In pilot studies we have demonstrated that treatment can be effective but we need to learn a lot more about whether different strategies are better for different kinds of difficulties.

We aim to determine whether:

- Deficits in emotion processing contribute to changes in personality and behaviour
- Deficits in emotion processing impact upon good communication skills

We will also develop and evaluate a range of strategies to improve emotion recognition. In particular we are interested to learn whether certain people with brain injuries are assisted in their ability to recognise emotions in others by

- Directed attention to improve empathic responsiveness
- Mimicking facial expressions to stimulate relevant brain areas and thereby boost recognition accuracy
- Focusing attention to improve recognition of emotion in voice
- Selectively attending to one channel (e.g. face versus voice) to improve recognition overall
- Using a treatment approach which limits errors (errorless learning)
- Teaching a strategy that can be used in everyday social situations

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 6 months ago or longer and are now living in the community.

### 12. Understanding brain damage in people who use illicit drugs

**Investigators:** Shane Darke (National Drug and Alcohol Research Centre) and Skye McDonald (Psychology, UNSW)

People who use heroin and other illicit drugs are at risk of brain damage from drug overdose, alcohol and violence related trauma to the brain. Such damage may impair thinking, memory, and emotional and behavioural control. These problems are important to consider when working with people in

Methadone Maintenance programs but to date there has been no research documenting the effects of such neurological insults in terms of neuropsychological function and everyday behaviour. This study will do this by examining a group of people who have used heroin habitually compared to peers who have not.

## New PhD researchers joining our team in 2008

We wish to warmly welcome two new PhD researchers, Danielle Mathersul and Michelle Kelly, who are joining the team in February. Their upcoming research projects will no doubt be exciting contributions to future newsletters!



**Danielle Mathersul**



**Michelle Kelly**

## Recently published papers and conference abstracts from research described in previous newsletters

Bornhofen, C., & McDonald, S. (2008). Treating emotion perception deficits following traumatic brain injury. Neuropsychological Rehabilitation, 18(1), 22-44.

Bornhofen, C., & McDonald, S. (2007). The relationship between cognitive variables and emotion perception remediation gains in TBI. Abstracts of the 2007 Annual Meeting of the Australian Society for the Study of Brain Impairment, Brain Impairment, 8

Bornhofen, C., & McDonald, S. (In press). Comparing strategies for remediating emotion perception deficits in traumatic brain injury. Journal of Head Trauma Research.

Bornhofen, C. & McDonald, S. (In press). Emotion perception deficits following traumatic brain injury: A review of the evidence and rationale for intervention. Journal of the International Neuropsychological Society.

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