The changing season opens the mind for new experiences. These experiences establish new memories and can be enriching for our well being. For those with a good predisposition and pleasant memories of changing seasons the chances of establishing pleasant experiences are better than for those with unpleasant memories as our implicit memory systems are prone to focus on the positive and pleasant if we feel safe and be on alert when we do not feel safe.

As therapists we can assist in changing the memory system action of our clients by

1. Taking care of our personal well-being - which has a assuring effect on our clients through the effect of the mirror neuron system
2. Creating a safe therapeutic space – which assists in generating emotional safety which establishes the basis for effective learning and cognitive change tho address unhelpful looping activity (especially in the right prefrontal cortex)
3. Providing client specific psycho-education – which assists the client with insight and empowers the ability to address unhelpful emotional responses fuelled by an overactive anterior cyngulate gyrus and limbic system -especially the amygdala and HPA (hypothalamus-pituitary-adrenal axis) system.

In this edition we provide some thoughts on neuroscience and childhood development. It is important for us as clinicians to have some understanding of the neurobiological processes that happen in childhood development as it provides us with a critical map of the dilemmas and behavioural difficulties that our clients face later in life. It also provides us with key pointers to address in our therapeutic intervention planning.

Our Brain and Anxiety Workshops commence this week in Melbourne (13,14 May) and later this month in Canberra (27,28 May). Our workshops were all booked out last year so we secured larger venues for 2011. Unfortunately the Auditorium at Royal Melbourne Hospital is booked out – we apologise for those who wanted to register over the past few weeks and missed out. I look forward to meeting many of you that corresponded with us over the course of the last 12 months.

Enjoy the read!

Pieter Rossouw

The group consisting of mother, father, and child is the main educational agency of mankind

- Martin Luther King Jr
Food for Thought

Pre-Injury Exercise May Mitigate the Effects of Traumatic Brain Injury in Mice

A recent study held in San Diego has shown that being physically fit might help mitigate the effects of traumatic brain injury (TBI). Mice bred to be more physically fit sustained smaller brain lesions and participated more actively in post-injury than their lazier cousin. Physical exercise as part of rehabilitation is known to improve cognitive recovery, but physical fitness prior to injury has not been linked to recovery until now.

In the study four mice selected for running behaviour were found under magnetic resonance to have lesions on average 34% smaller than their non-running counterparts after undergoing a procedure to mimic TBI. The running mice exhibited better balance, and increased activity after injury, indicating the smaller lesions led to improved recovery. The activity and balance of sedentary mice decreased after the TBI.

Science Daily, “Pre-Injury Exercise May Mitigate the Effects of Traumatic Brain Injury in Mice”, November 2010

Neuroscience Development

Pieter Rossouw (MClin Psych, PhD)

Children are constantly learning. This natural process can become problematic in early childhood as the child soaks up their environment like a sponge, the good relationships and stimuli along with the bad. A negative attachment with a child’s primary carer in their earliest months can lead to problematic regulation of emotions and become the foundation for a lifetime of intrapersonal dysregulation. This dysregulation of autonomic arousal and the presence of established negative feedback loops lies at the bedrock of mental disorders, particularly anxiety and depression.

In an environment composed of unfavourable dispositions and poor attachment relationship the child will not be given a good footing for future mental health, rather, the repeated neural activation of negative paths will reinforce their negative emotions. Over time these paths will be more thoroughly formed, strengthened, and will fire more easily, making the child more sensitive to negative emotions. Less intense triggers will be required to bring about negative emotions, and the frequent facilitations will result in the formation of more transmission-conducive synapses.

By the age of ten months enduring neural structures have been formed based on the early life experiences of the child. The brain areas controlling negative emotions; the right pre-frontal cortex, anterior cingulate cortex and orbito frontal cortex, develop loops, linking with the amygdala and the fear response (Davidson & Fox 1989). These structures can be measured in order to predict how the child will cope with stressful situations, such as brief separations from its mother. These structures remain stable over time, and are still in place at 36 months, predicting the degree to which the child’s behaviour is restricted, also linking with the effects on resilience and plasticity. Due to frequent facilitations these negative emotional connections can be activated easily throughout the child’s life, with a significantly detrimental effect on stability and behaviour. Significant glucocorticoid changes in the limbic structures linked with early maternal separation has been demonstrated in research (Rivarola & Suarez 2009). Davidson demonstrated how these changes remain stable over long periods of time and have significant implications on resilience and plasticity (Davidson 2000).
During these formative years the child’s motivational schemas, not only their emotional reactions are being formed. The child’s early experiences are often linked to strong inconsistency tensions, which become the basis for avoidance learning. The child attempts to avoid or terminate negative states, and begins to build mechanisms that are facilitated by negative reinforcement. These avoidances are rewarded by dopamine release, leading to a particularly effective facilitation of the avoidances, and due to the looping activity in the brain the child will continue to utilise these avoidance strategies to deal with negative emotional states.

These development occur in levels of severity, and the child may suffer from these very slightly, or to a large extent. If a child’s primary attachment figure is unsatisfactory they may still experience positive attachments through secondary figures, enriching the motivational schemas. However, children who have been severely neglected or abused have a far greater likelihood (80%, even in presence of favourable genetic dispositions) of developing insecure attachment. Their experience of uncontrollable incongruence leads to a regular release of stress hormones and glucocorticoids, leading to the formation of negative feedback loops, and shrinking of the hippocampal volume. In these cases early intervention becomes extremely important, as in later interventions the process becomes harder and takes far longer to be effective (Semrud-Clickeman & Ellison 2009).

Hopefully it also becomes clearer that it is not a matter of

* just think different and it will all be good – or
* a one off hypnosis session to change your perspective – or
* Just eat right and all will be fine – or
* Just do exercise and the mental distress will disappear – or
* Lets do analysis – once you understand everything – the disorder will disappear – or
* Its all bad behaviours – change your behaviour and the disorder will be gone – or
* Its all genetics – just blame it on the parents – or
* Its all about some bad experience – once that is addressed – it will all be good – or
* Forget about the psychobabble – just take a tablet and it will all go away

A fully holistic approach – taking neurobiological, genetic, social and psychological factors in consideration is necessary to facilitate effective long term change. Key in this process is the psychotherapeutic environment generated by a skilled therapist in a warm, safe environment to assist with downregulation of stress responses and upregulation of neural patterns that enhance plasticity, neural growth and creative solutions.

Selected Literature
The Social Brain: Friends and Strangers

Could your friends have more of an influence over your ideas and beliefs than you thought? A recent Harvard study has shown that people are more responsive to those they are socially close to than to strangers, even if that stranger has more in common. The participants’ brains were scanned while answering questions about themselves to identify the brain regions relevant to personal information, regions which were then monitored while the subjects discussed themselves and their friends, those who they considered to be similar, and dissimilar to them. Their brains were scanned again while playing a game similar to television’s ‘The Newlywed Game’ in which the participants predicted how strangers would answer questions based on personality profiles and short interactions, e.g., would he or she prefer a window or an aisle seat on a plane.

The experiments showed activity in the medial pre-frontal cortex increased when subjected discussed their friends, but no response was registered when talking about a stranger with common interests.

"In all experiments, closeness but not similarity appeared to drive responses in medial prefrontal regions and associated regions throughout the brain," Krienen said. "The results suggest social closeness is more important than shared beliefs when evaluating others."


Brain regions that respond to information about friends are shown in orange and overlap a network of regions known to process personally relevant stimuli; regions that respond more to strangers are in blue. Notably, whether the person was perceived to be similar to the participant made no difference in brain response, suggesting that social alliances outweigh common interests.
A Comment
Just recently our office received an unsolicited copy of a DVD documentary through the post on the subject of the negative social and physiological effects of psychotropic medications. Since this film has cropped up in our mail several times, and no doubt for a few in our readership, we thought it may be of interest.

The film, Making a Killing, presented by the Citizens Commission of Human Rights, brings up some valid points regarding the potential for oversubscription and possible side effects of some drugs, but makes some equally wild accusations regarding diagnosis methods, at one point implying that most illnesses of the mind were invented by psychiatrists for billing purposes. It seemed a shame that its legitimate arguments were lost within in the descent into ranting. Possibly the most interesting thing about this documentary however was its’ origins. A quick internet search on the Citizens Commission of Human Rights showed it to be an arm of the Church of Scientology (CoS), a fact not mentioned anywhere in the film. The organisation answers directly to the CoS, who are known to dislike all branches of psychiatric medicine.

Literature – a popular read
The Brain That Changes Itself – Dr Norman Doige

And astonishing new scientific discovery called neuroplasticity is overthrowing the centuries-old notion that the adult human brain is fixed and unchanging. It is, instead, able to change its own structure and function, even into old age.

Psychiatrist and researcher Norman Doige, MD, travelled around the United States to meet the brilliant scientists championing neuroplasticity, and the people whose lives they’ve transformed – people whose mental limitations or brain damage were previously seen as unalterable, and whose conditions had long been dismissed as hopeless.

We see a woman born with half a brain that rewired itself to work as a whole; a woman labelled retarded who cured her deficits with brain exercises and now cures those of others; blind people who learn to see; learning disorders cured; IQs raised; ageing brains rejuvenated; stroke patients recovering their faculties; children with cerebral palsy learning to move more gracefully; entrenched depression and anxiety disappearing; and lifelong character traits changed.

Doige take us onto terrain that might seem fantastic. We learn that our thoughts can switch our genes on and off, altering our brain anatomy. We learn how people of average intelligence can, with brain exercises, improve their cognition and perception, develop muscle strength, or learn to play a musical instrument – simply by imagining doing so. Using personal stories from the heart of this neuroplasticity revolution, Dr Doige has written and immensely moving, inspiring book that will permanently alter the way we look at our brains, human nature, and human potential.

If you’d like to see more neuropsychotherapy books and articles, please visit our resources page (http://www.mediros.com.au/resources/literature)

Dr Norman Doige (2007), The Brain That changes Itself, Melbourne, Scribe Publications
Local Interest Groups
We have had some fantastic responses to the idea of establishing local and regional neuropsychotherapy interest groups, and some questions about what this might entail. Local groups might take any form which suits their participants, but levels of involvement could fall anywhere between a monthly email to keep colleagues apprised of local events, to a regular meet up for clinicians to discuss their challenges and ideas. Some of our readers have indicated a desire to participate but pointed to already jam-packed schedules, while others have shown an interest in taking a very active role, and we like to see both ends of the spectrum included in these groups.

If you do wish to be involved in a local or regional interest group please drop us an email at admin@mediros.com.au or kirani.mediros@yahoo.com.au

It is good to rub and polish our brains against those of others

Montaigne

Events
Mediros Workshops
As mentioned in the previous newsletter we are running two workshops this year, the first of which, The Brain and Anxiety, is almost upon us. For more information, or to register, please visit www.mediros.com.au

The Brain and Anxiety Workshop dates are:

13 - 14 May – Melbourne (booked out)
27 - 28 May – Canberra 3 - 4 June – Sydney
14 - 15 June – Brisbane 24 - 25 June – Adelaide
1 - 2 July – Perth 12 - 13 August - Launceston

Neuroscience of Depression Workshop dates are:

9 - 10 September – Perth 23 - 24 Sep - Melbourne
30 Sep - 1 Oct – Adelaide 7 - 8 October - Brisbane
21 - 22 October – Canberra 4 - 5 November - Sydney

We are looking forward to running our first ever workshop in Tasmania, in Launceston on the 12th and 13th of June. For more information please see our website.
Note: This edition of the Neuropsychotherapy News has been mailed not only to our Neuropsychotherapy interest group members but also to everyone registered in a Mediros workshop. If you wish to continue receiving our newsletter and are not registered with the interest group please fill out a quick form at www.mediros.com.au/nptinterestgroup/

If you are already a member of the interest group you will continue to receive our newsletter as normal.

Contact Us

We welcome Kirani Carlin as a new member of our team; Kirani will be responsible for our newsletter as well as workshop registration and specialized Mediros tasks relating to events management.

If you have any further questions or comments, or to unsubscribe, please contact us at admin@mediros.com.au or contact Kirani direct on kirani.mediros@yahoo.com.au. Phone us on 07 3294 3220.

Mediros Clinical Solutions (Admin)
P.O. Box 9
Ipswich, 4305