NZSIGN
NEW ZEALAND SPECIAL INTEREST GROUP IN NEUROPSYCHOLOGY

NEWSLETTER Edition 2
July 2013

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Nau mai ki te panui whakaputanga tuarua o NZSIGN. Ko te tumanako ka eke tonu matou ā matauranga, ka whakanuia hoki i ngā mōhiotanga kei a matou ki roto i Aotearoa me te whakakaha te whakawhanaungatanga o ngā kaimātai ā hinengaro.

Welcome to the second edition of the NZSIGN newsletter. Our hope is to continue to share knowledge, acknowledge the expertise we have in New Zealand and to further reinforce collegiate networks.

Recently held NZSIGN Workshop February 2013 Meyers and Meyers workshop Wellington

The workshop provided John Meyers and Kelly Meyers, authors of the well known Meyers's and Meyers's norms for the Rey Complex Figure (ages 6 to 89 years) was a great success, with very positive post-workshop survey feedback from participants. John and Kelly provided a practically based workshop in the administration, scoring and interpretation of the RCFT and the interactive nature of the workshop was warmly welcomed. John and Kelly commented on how much they enjoyed visiting New Zealand and meeting the 'locals'. Thanks also to Psychological Assessment Resources (PAR) for their contribution to travel cost and manuals, Caroline Greig (Executive Director, NZCCP) and Elliot Bell (Otago University) for their assistance with helping with the logistics of organising the workshop. John is also the author of the MNB (Meyers Neuropsychological Battery) with recent adaptation through changes to provide relevant New Zealand demographics. As an example of the benefits of the MNB, the newly published article by Meyers and others (2013) (reference on p. 18) used the MNB combined with an artificial neural network within the MNB to create an algorithm to perform pattern analysis matching (PAM) functions that can be used to assist with differential diagnosis between TBI and PTSD in a military sample. The PAM classifications showed 90% overall accuracy and therefore is a very useful tool to help with clinical decision-making.

Next workshop - Neuro-rehab provisionally planned for November 2013, Auckland

The next proposed NZSIGN workshop focus is on neuro-rehabilitation. A range of presenters will be involved and to include Professor Richard Siegert, Dr Alice Theodam, and Dr Jamie Macniven. Updates will be sent within the next few months.

Prof Richard Siegert taught Psychology at Victoria University of Wellington for 11 years and then headed the Rehabilitation Teaching and Research Unit of the University of Otago at the Wellington School of Medicine. For four years he worked in the Department of Palliative Care, Policy and Rehabilitation at King's College London. He is currently the Principal Investigator on a large NIHR-SDO grant which is studying community rehabilitation services for people with complex neurological conditions. Prof Siegert is currently Professor of Psychology and Rehabilitation at Auckland University of Technology (AUT). He has co-authored over 85 articles and books, including "Interprofessional Rehabilitation: a person-centred approach" (reviewed on p.11).

Dr Jamie Macniven is the Consultant Neuropsychologist in the Neurology Department, Auckland Hospital. His previous role was as a Consultant Clinical Neuropsychologist for Nottingham University Hospitals NHS Trust and Course Director of the MSc programme in clinical neuropsychology at the University of Nottingham. He has co-authored "Psychological Management of Stroke" (reviewed on p. 11).

Dr Alice Theadom is a NZ Registered Psychologist and leads a research programme on traumatic brain injury within the National Institute for Stroke and Applied Neurosciences at AUT University. Alice worked as a psychologist in the UK, before moving to New Zealand over four years ago. Alice has a particular in interest in the practical application of psychological approaches within the health field. She was involved in supervising 'public health assistants' as part of a pilot programme to integrate psychology into health promotion practice and is currently working on a number of research studies including using an online CBT programme to improve sleep for people with TBI and the application of mindfulness within neurological populations.

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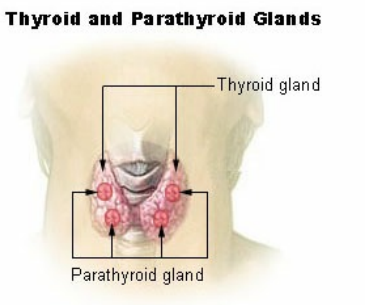
Thyroid dysfunction and related neuropsychological findings

review by Kay Cunningham and Polly Schaverien



Endocrine disorders can have a potentially significant effect on cognitive functioning as well as producing psychiatric sequelae. Thyroid hormone plays a crucial role in the growth and function of the central nervous system and in a recent neuropsychological assessment by the authors it was necessary to consider the potential effect of a previous thyroid dysfunction (now stabilised) on presenting difficulties of persisting subjective cognitive impairment. This highlighted the need to take into consideration possible endocrine effects when referrals indicate there is a relevant medical history. In this brief review consideration is given to some of the effects of over and under active thyroid and the impact this can have on cognitive performance.

Hypothyroidism

Primary hypothyroidism results from low levels of thyroid hormones in the circulation as a direct result of underproduction by the thyroid gland. Hashimoto's thyroiditisis is the most common reason, and may be associated with other endocrine organ deficiencies such as diabetes mellitus or Addison's disease. Other causes are congenital, drug effects, surgical removal of the thyroid, and radioactive iodine treatment. Secondary causes include deficit TSH stimulation by the pituitary.

Hypothyroidism- symptoms may include:

- Cognitive dysfunction.
- Fatigue and muscle weakness.
- Increased sensitivity to cold.
- Constipation.
- Dry skin.
- Unexplained weight gain and puffy face.
- Hoarseness.
- Elevated blood cholesterol level.
- Muscle aches, tenderness and stiffness.
- Pain, stiffness or swelling in joints.
- Heavier than normal or irregular menstrual periods.
- Thinning hair.
- Slowed heart rate.
- Depression.

A number of studies suggest neuropsychological deficits in hypothyroidism most commonly include mental slowing and long response latencies, diminished attention and concentration, impairments in learning and memory, executive dysfunction and global cognitive deficits, with unaffected language and motor skills (Tremont et al., 2003). However a clear neuropsychological profile has yet to be fully defined for hypothyroidism. In a study by Krausz and colleagues (2004) they measured cerebral blood flow (rCBF) between hypothyroid patients and healthy subjects and after treatment assessed flow during the euthyroid (normal thryoid functioning) state. Results showed decreased rCBF in mild hypothyroidism was evident in regions mediating attention, motor speed, memory, and visuospatial processing - faculties affected in hypothyroidism. Perfusion did not normalise on a return to the euthyroid state suggesting symptoms could persist longer term even after treatment, either due to a longer time needing to normalise or possibly representing an abnormal trait pattern typical of hypothyroidism.

Subclinical thyroid dysfunction

Reviews of studies on subclinical thyroid dysfunction have largely indicated symptoms at this level are non-specific and to date the majority of studies have not identified any significant effect on cognitive functioning (Biondi and Cooper, 2008; Samuels, 2010) , However this continues to be an area of debate. Some researchers propose some degree of working memory dysfunction may be present (e.g. Zhu et. al., 2006) whereas others such as Aghili and others (2012) found significant improvement in mental control, logical memory and associate learning on Wechsler Memory scales in patients with subclinical thyroid levels that were subsequently treated with levothyroxine .

Studies on the effects of subclinical hypothyroidism in the elderly have received some attention in recent years. As stated by Begin and others (2008) normal thyroid function appears to be an important factor in retaining optimal cognition in human aging. The authors further report:

Our overall impression is that there is a substantial degree of disagreement regarding several aspects of the relationship between TSH, thyroid hormones, and cognitive performance. Most studies were adjusted for age, educational level, gender, and mood status, but differences in results that remain may still be due to differences in sample populations, exclusion criteria, age range, normal limits of TSH reference values, and choice of cognitive tests "(p.8)".

Moreover, the interpretation of these results is complicated by the coexistence of age-related nonthyroidal illnesses which may contribute to serum thyroid hormone and TSH perturbations but for which adequate correction may not have been made".

Severe thyroid dysfunction

Myxoedema is a rare but severe form of hypothyroidism which can lead to coma and death if not treated rapidly. It can potentially be difficult to diagnose. Causes include infections, medication, hypoglycaemia, and major illness/traumas/surgeries. It occurs mostly in the elderly (rarely seen before age 60 years) and mainly in women. Deterioration in mental state occurs with an associated psychosis, which can then lead to coma.

Thyroid insufficiency effects on foetus and future development

A strong relationship exists between thyroid hormone and early brain development. The foetus has two potential sources of thyroid hormones – via it's own thyroid and the mother's thyroid. Maternal hypothyroidism is usually associated with infertility. However maternal subclinical hypothyroidism has been identified as a potential cause of subsequent developmental and cognitive delay. A common cause of subclinical hypothyroidism is autoimmune disease, with it known that anti-thyroid antibodies cross the human placenta. Consequently, the cause of this disorder may be a passive immune attack on the foetal thyroid gland Lazarus et al., 2005). Studies on maternal thyroid dysfunction and the effects on the foetus have prompted the development of Clinical Practice Guidelines and in New Zealand the Ministry of Health refers to the "Management of thyroid dysfunction during pregnancy and postpartum: an Endocrine Society Clinical Practice Guideline" produced by Abalovich and colleagues (2007) as the primary reference for medical protocols. https://www.health.govt.nz/system/files/documents/pages/clinical-guideline-management-of-thyroid-dysfunction-during-pregnancy-postpartum.pdf).

If the foetus has thyroid dysfunction (congenital hypothyroidism), provided there is early treatment, the potential for negative neurocognitive effects are prevented. Graves' disease is the most common cause of hyperthyroidism in children but is generally a rare condition therefore research into the effects for this age group is limited.

Thyroid dysfunction and TBI

In the article by Kaulfers and others (2010), they state that endocrine dysfunction (including hypothyroidism) after TBI in children is common but in most cases resolves by one year . To date, in the context of adult TBI, while there are studies on pituitary insufficiency available there are very few studies on whether thyroid dysfunction can be caused by TBI (Sesmillo et al., 2007). It is possible that a contributing factor to some of the persisting symptoms after TBI (such as anxiety, depression and fatigue) may be due to an underlying thyroid dysfunction which may pre-exist trauma but becomes most relevant in the context of additional effects from injury. This remains speculative however.

Some studies on severe TBI do propose there is a significant subset of brain injury patients with changes in thyroid function, for example as present one year after ICU discharge (Dimopoulou et. al., 2004).

Differential diagnosis

Thyroid dysfunction can induce various neuropsychiatric disorders and hypothyroidism is one of the most common forms of treatable dementia. Sahin and colleagues (2007) therefore state consideration of thyroid disease is important when patients present with primarily depression and cognitive disorder.

Depression is often evident in conjunction with a euthyroid state. However Fountoulakis and others (2008) have stated that while overt thyroid disease is rare among depressed patients there is a subgroup of depressed patients which may manifest subtle thyroid abnormalities, or an activation of an autoimmune process. They believe there is a strong possibility that the presence of a subtle thyroid dysfunction is a negative prognostic factor for depression and may demand specific therapeutic intervention.

Hyperthyrodism

Hyperthyroidism - symptoms may include:

- Cognitive dysfunction.
- Sudden weight loss, even when appetite and the amount and type of food eaten remain same/increases.
- Increased appetite.
- Rapid heartbeat (tachycardia) — commonly more than 100 beats a minute — irregular heartbeat (arrhythmia) or pounding of heart (palpitations).
- Anxiety - in particular generalised but also social anxiety), variable mood and irritability.
- Tremor — usually a fine trembling in hands and fingers.
- Sweating.
- Changes in menstrual patterns.
- Increased sensitivity to heat.
- Changes in bowel patterns, especially more frequent bowel movements.
- An enlarged thyroid gland (goiter), which may appear as a swelling at the base of neck
- Fatigue, muscle weakness.
- Difficulty sleeping.
- Skin thinning and fine, brittle hair.

Research has shown that there is a high prevalence of persistent psychological distress in patients treated for endocrine disease. In a study by Sonino and colleagues (2004) 81% (118 patients) were identified as having at least one psychiatric or psychological diagnosis. The most frequent diagnostic findings were generalised anxiety disorder (29%), major depression (26%), irritable mood (46%), demoralisation (34%) and persistent somatisation (21%).

Grave's disease is an autoimmune disease which most commonly affects the thyroid, with hyperthyroid symptoms such as increased heartbeat, muscle weakness, disturbed sleep and irritability. Research suggests that Graves' disease is regularly associated with psychological symptoms, most notably anxiety and fatigue. There is a high overlap in symptomatology between Graves' and anxiety, with the former often being mistaken for the latter, prior to treatment for hyperthyroidism. In a study of women with treated hyperthyroidism it was shown there was a higher incidence of anxiety disorders (in particular generalised anxiety, but also social anxiety) in the patient group than in matched controls (Bunevicius et al. 2005). More than half of patients in one UK sample suggested lack of energy was a residual problem resulting from Graves' disease, with more than one third unable to resume the same level of full-time work as previously, with two thirds of those whose predominant role was in the household reporting a decline in competence Fahrenfort et al. 2005). Among patients who had been euthyroid for a year or more, there was still an average of 6 symptoms noted, including avoidance of large gatherings, changeable moods, and a need for rest.

As also noted by Thomsen and others (2005) while some studies indicated euthyroid patients recovering from hyperthyroidism had long-term residual complaints, including persistent symptoms of depression and anxiety, other studies indicate resolution of psychiatric disturbances and impaired quality of life upon correction of hormonal imbalances.

In other studies neuropsychological deficits have been identified in individuals with untreated hyperthyroidism with the most common being decreased concentration, slowed reaction time, decreased complex visual processing and spatial organisation abilities and poor conceptual skills. These impairments have been reported as being consistently observed and not necessarily attributable to psychiatric symptomatology (Tremont et al., 2003).

While symptoms are most noted at the time the person is hyperthyroid, some patients have reported residual cognitive symptoms even once euthyroid (Stern et al., 1996). There is a degree of variation in the literature regarding whether the cognitive symptoms reflect subjective or objective impairments, however, regardless of whether impairments reflect affect and somatic complaints or changes in TSH receptors in the cortex and hippocampus Bunevicius, et al. (2005) patients report fewer symptoms 12 months after becoming euthyroid (Fahrenfortet al., 2000).

Vogel and colleagues (2007) note that in the acute phase of Graves' thyrotoxicosis patients often have subjective cognitive complaints. Again in their review of literature they identify there is continuing controversy about the nature of these symptoms and whether they persist after treatment. In their study of 31 patients with newly diagnosed and untreated Graves' thyrotoxicosis (matched with controls). Their findings were as follows:

"At initial examination patients had significantly higher scores on psychiatric rating scales as compared with controls, and the majority reported memory and concentration problems. No significant differences between the patient and the control group on neuropsychological test performances were found. Thyroid levels did not correlate with the neuropsychological test performances or psychiatric ratings. After reaching euthyroidism the level of affective symptoms (including reports of cognitive deficits) had decreased significantly, with further normalisation 1-year after treatment initiation. In conclusion, patients had subjective reports of cognitive deficits in the toxic phase of Graves' thyrotoxicosis but comprehensive neuropsychological testing revealed no cognitive impairment. Reports of cognitive dysfunction may reflect affective and somatic manifestations of thyrotoxicosis and in most patients these symptoms disappear after treatment of Graves' thyrotoxicosis" (abstract).

Elberling and colleagues (2004) suggest impairment might be influenced by still unknown factors or may be related to individual differences in perception of disease. Thus, for example, psychologically vulnerable individuals might have prolonged health-related quality of life impairment despite successful thyroid treatment.

While the reasons behind prolongation of cognitive difficulties and functional impairment in people diagnosed with Graves' disease is unclear, the *subjective* experience of fatigue, difficulties concentrating and concern regarding a decline has been reported. In an evaluation of cerebral biochemistry in acute and treated Graves' disease they suggest that there may potentially may be some persisting effects on parieto-occipital white matter (Danielsen et al., 2007). The primary function of this area includes integration of sensory information, spatial orientation, ability to perceive objects, visual attention and visual-spatial processing ability.

Summary

While the research on the effects of thyroid dysfunction continues to be a contentious area, when undertaking neuropsychological assessments wherein thyroid dysfunction is a factor it is important to consider there may be potential effects of endocrine disorders on cognitive functioning, either directly (brain dysfunction) or indirectly (for example, psychological effects which can be due to low thyroid hormone levels or co-morbid and fatigue). (See p. 19-20 for reference list).

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Exploring poor test performance in neuropsychological assessment - what can base rates tell us?

By Clare Ramsden

In 2012, I had the pleasure of attending a day seminar in London with Prof Grant Iverson entitled"Evidence-Based Neuropsychological Assessment". The first half of the day covered Professor Iverson's research and publications relating to the reliability, validity, and clinical accuracy of neuropsychological assessments, specifically examining the prevalence of low scores in the neuropsychological assessment of healthy adults. As Prof. Iverson states, this work is particularly relevant to us as clinicians as we do not have "evidence-based, widely accepted psychometric criteria for interpreting the severity of cognitive impairment. At present, the diagnosis of cognitive impairment, and level of cognitive impairment, is based primarily on clinical judgment".

As neuropsychologists, when we conduct a cognitive assessment we commonly administer a range of tests; this is sometimes a whole battery but frequently we also administer a number of individual subtests. When a person demonstrates a low score on one or more of our subtests, how confident are we that this represents a cognitive impairment, and of what severity? Do we know how frequently healthy adults would show similar low scores? Iverson's work aims to answer some of these questions.

Iverson's argument is that, as clinicians, we often make the mistake of interpreting multivariate data in a univariate manner: "The mainstream practice of interpreting numerous test scores in clinical neuropsychology could be seen as akin to running 50- to 100 *t*-tests in an experiment. Some significant findings in the experiment might emerge by chance". I imagine that most of us would readily acknowledge that it may be common to see some low scores when administering a number of cognitive tests to a healthy older adult, but how common?

Iverson and colleagues (2012) demonstrate that if, for example, "the WMS-II is administered and the eight age-adjusted primary subtest scores are examined simultaneously, 26% of healthy older adults have one or more scores at or below the 5th percentile". Using demographically adjusted norms will result in fewer low scores for those with low education and more low scores for those with higher education, but the same principles apply; i.e., a proportion of healthy adults will show low scores when using multiple tests.

Interestingly, if we include intelligence in the equation, the picture becomes more variable. People with below-average intellectual skills will have more low scores than people with above average intelligence, as test performance is correlated with intelligence. This means that there is a risk of misdiagnosing cognitive problems in those with below-average intellectual skills, or missing a diagnosis of cognitive problems in those who have above-average intellectual skills.

Iverson and colleagues have published a number of papers providing baseline data for a range of cognitive batteries, including the Weschler III and IV tests. The tables allow clinicians to identify how likely they would be to see the pattern of performance of their client in the healthy adult population. In addition, they have calculated base-rate data for specific domains.

Clare Ramsden trained as a clinical neuropsychologist in Melbourne, Australia, and most recently has been working as a Consultant in Neuropsychology & Rehabilitation in the UK. She is currently the Director of Allied Health, Mental Health and Addiction Services at Wairarapa and Hutt Valley DHBs.

References for Base rates article

Iverson, G. L., Brooks, B. L., Holdnack, J. A. (2012). Evidence-based neuropsychological assessment following work-related injury. In *Neuropsychological Assessment of Work-Related Injuries.* Guilford Press: UK.

Iverson, G. L., & Brooks, B. L. (2011). Improving accuracy for identifying cognitive impairment. In *The Little Black Book of Neuropsychology* (pp. 923-950) Springer US.

Binder, L. M., Iverson, G. L., & Brooks, B. L. (2009). To err is human:"Abnormal" neuropsychological scores and variability are common in healthy adults *Archives of Clinical Neuropsychology*, 24(1), 31-46.

Brooks, B. L., Iverson, G. L., Feldman, H. H., & Holdnack, J. A. (2009). Minimizing misdiagnosis: Psychometric criteria for possible or probable memory impairment. *Dementia and geriatric cognitive disorders*, 27(5), 439-450.

Brooks, B. L., Iverson, G. L., Holdnack, J. A., & Feldman, H. H. (2008). Potential for misclassification of mild cognitive impairment: A study of memory scores on the Wechsler Memory Scale-III in healthy older adults. *Journal of the International Neuropsychological Society*, 14(03), 463-478.

Additional articles relevant to topic: of base rates:

Crawford, J.R. , Garthwaite, P.H. & Gault, C.B. (2007). Estimating the percentage of the population with abnormally low scores (or abnormally high score differences) on standardised neuropsychological test batteries: a generic method with applications. *Neuropsychology,* Vol: 21 (4), pp. 419-430.

Crawford, J.R., Garthwaite, P.H., & Betkowska, K. (2009). 'Bayes' theorem and diagnostic tests in neuropsychology: interval estimates for post-test probabilities. *The Clinical Neuropsychologist,* Vol: 23 (4), pp. 624-644.

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Conference comments

Kay Cunningham

I recently attended the May ASSBI conference in Hobart, Australia (*36th Annual Brain Impairment Conference: Assessment Clinical Change*). A highlight of the conference was the coverage of paediatric topics, given this population group can often be only a small part of conference focuses. It was also great to see New Zealand research for example by Theadom, Valery, Barker-Collo, Starkey and Jones being presented on behalf of the BIONIC research group on the prevalence of recurrent traumatic brain injury (TBI) in a New Zealand population-based incidence samples. The following are some examples of papers presented at the ASSBI conference.

Professor Vicki Anderson

One of the key contributors (through her own research as well as research supervision of others) was Professor Vicki Anderson. Prof Anderson is a paediatric neuropsychologist who has extensive experience in childhood developmental and acquired disorders of the central nervous system, and helped establish the Murdoch Children's Research Institute at the Royal Children's Hospital Melbourne. She is the Director of Psychology at the Royal Children's Hospital in Melbourne, Director of Critical Care and Neuroscience Research at the Murdoch Children's Research Institute; and Professor of Paediatrics and Psychology at the University of Melbourne.

Paediatric Social Cognition

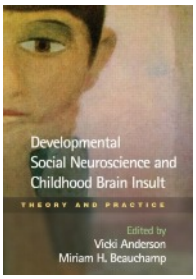
Professor Anderson provided an excellent presentation on social development in children and adolescents and the impact traumatic brain injury can have during stages of emotional and cognitive development. In brief, in the past the frontal lobes were thought to be 'silent' in early childhood however neuroimaging advances have identified maturation is still occurring into the early twenties. Conversely a decline in frontal lobe functioning occurs from approximately the age of 50 years.

Concepts and understanding around neuroplasticity and the capacity for the brain to recover after injury or insult have changed considerably in more recent years. It is thought the capacity for plasticity (neurogenesis) has a genetically predicted blueprint. The potential for young brains to change in the context of environmental influences is generally considered to be a positive capacity. However when brain development is 'derailed' by injury or insult, ongoing maturation of the emerging neural connectivity can be negatively impacted. As a consequence of this, the functional plasticity of the brain may not necessarily be optimal due to the vulnerability of the young brain to abnormal neurogenesis. Ongoing neural development can become random and the more immature the brain the more risk of this occurring. During rapid periods of brain growth synaptic pruning occurs. However when brain injury occurs damage or death to cells is a consequence. When the normal process of selective synaptic pruning occurs, if neural dysfunction is present and neural systems are not effectively linked, then this pruning can contribute to aberrant brain maturation and longer lasting cognitive impairment.

Social cognition is one of the areas that can be negatively affected by brain insult, not only in, for example, the initial stages after injury, but in the longer term as plasticity occurs in adaptation to damaged or poorly developed pathways.

As clinicians we don't necessarily have the resources beyond clinical observation, or a good understanding of models of age-appropriate social competency, in order to determine quite specific aspects of functional and dysfunctional social cognition skills. This presentation by Professor Anderson highlighted the need for careful consideration of paediatric early developmental insult and TBI effects in the social domain.

A very useful text relevant to this area is "*Developmental social neuroscience and childhood brain insult: theory and practice*"



(2012) which is edited by Professor Anderson and Dr Beauchamp and published by Guilford Press. Theoretical frameworks of developmental social neuroscience are provided along with practical consideration of neuropsychological testing and rating/questionnaire scales; how developmental disorders and trauma can affect social competency, as well as descriptions of relevant social interventions.

[While not part of the presentation by Professor Anderson, for an interesting article on neurodevelopmental maturation processes through childhood and adolescence (neuroanatomically and functionally) with a focus on a general strategy for testing models of "late" neurodevelopmetnal disturbances in schizophrenia, see: Luna, B.L. & Sweeney, J.A. (2001). Studies of brain and cognitive maturation through childhood and adolescence: a strategy for testing neurodevelomental hypotheses. *Schizophrenia Bulletin,* Vol: 27 (3), pp. 443-455].

Conference comments (continued)

Interactive computerised memory therapy system for children and adolescents

Dr Janine Cooper and team at the Murdoch Children's Research Institute, Melbourne have developed a computerised treatment system for children and adolescents post TBI with autobiographical memory problems. The system uses x-box technology and the child/adolescent creates an image of the therapist as a virtual friend. The therapist utilises the information to then respond and set up routines. The program allows for the child/adolescent 'talks' to the virtual friend about what they have done at school that day as well as logging (for example) the following morning before they start their day.

The system is set up to incorporate information the child/adolescent provides with this in turn being programmed by the therapist into appropriate cueing and prompts by the virtual 'friend'. This aids improvement or compensation around autobiographical memory impairments. While initially developed for memory deficits it also has promise for addressing other difficulties such as social reasoning and skills. It is also planned to be available for use through apps on mobile phones and other related technology.

Dr Cooper and the research team received the Brain Foundation Award in 2012 for this innovative work and it is currently in pilot stages. This is an exciting research project given the potential for providing daily memory training support which reduces the dependency on others (such as parents) through enabling self-management via a very relevant medium for these age groups.

The benefits of the system also include memory training that can occur multiple times a day and overcoming barriers such as providing therapies in remote areas or where attendance to therapy is time and financially pressured for families. Also the child/teenager doesn't need to miss school to have regular intervention. Once efficacy and feasibility has been further evaluated future development is aimed at the system being published and available for wider use.

Cognitive effect of exercise following concussion in children and adolescents: consideration of when is return to play safe?

Researchers Manikas, Babi, Dooley and Anderson undertook a study to identify what the cognitive effect of exercise is on a child or adolescent during the post-symptomatic phase of concussion recovery, and how this may change over time. The study had unexpected findings whereby concussed participants showed higher levels of cognitive deficit on Day 10 of testing (which in some cases was close to two weeks post-injury) than they did two to three days post-injury. This suggested that the added stressor and mental fatigue of returning to their usual school routine may be a factor in a decline in functioning. The researchers indicate this has implications in regards to return-to-play guidelines on Day 10 as this may put the child at greater risk of sustaining a secondary concussion.

Prevalence of recurrent TBI in NZ population-based incidence sample

The BIONIC (Brain Injury Outcomes New Zealand in the Community) study has been referred to in the first NZSIGN Newsletter. This is the only known epidemiological investigation of the prevalence and impact of recurrent TBI in a population based sample. The research involved the identification of all new cases of TBI in the Hamilton and Waikato districts for a year (2010-2011). In this conference presentation Dr Theadom presented preliminary findings that 35% of the total sample had sustained >1 TBI in their lifetime. Sixty percent of recurrent TBI's occurred in males, with highest peaks in prevalence in the under 5's and 18-25 year olds. The most frequent mechanisms of recurrent injuries were falls (47%) and assaults (16%). These results suggest that greater efforts were needed to prevent recurrent TBI's in these predominantly affected age groups.

Acceptance and Action Questionnaire II (AAQ-II) and for TBI (AAQ-ABI)

Whiting, Deane, Ciarrochi, McLeod and Simpson recruited 75 participants from the Liverpool Brain Injury Unit (Sydney) in an intervention trialing Acceptance and Commitment Therapy to facilitate the adjustment process in adults experiencing psychological distress after TBI. This involved participants completing self-report measures of mood and avoidance as well as two measures of acceptance. Preliminary analysis of both the AAQ-II and the AAQ-ABI indicated they were both suitable for evaluation of acceptance in an ABI population with the ABI specific measure of acceptance demonstrating superior test-retest reliability. The protocol is registered on the Australian New Zealand Clinical Trials Registry and is outlined in the article by Whiting, D., Simpson, G., McLeod, H., Deane, F. & Ciarrochi, J. (2012). *Brain Impairment*, Vol: 13 (3), p. 360-376.

Self-perceptions in Rehabilitation Questionnaire (Poster)

Steward and colleagues at Griffith University have developed the Self-perceptions in Rehabilitation Questionnaire (SPIRQ). This is a brief measure developed to monitor emotional reactions, motivation, and self-perception throughout rehabilitation. The subject group were 105 adults with TBI attending occupational therapy sessions at brain injury rehabilitation units.

An outline of this research can be found in the article by Ownsworth, T., Stewart, E., Fleming, J., Griffin, J., Follier, A. & Schmidt, J. (2013). Development and preliminary perceptions in rehabilitation questionnaire (SPIRQ) for brain injury rehab. *American Journal of Occupational Therapy,* Vol: 67 (3), p. 336-344 or by contacting Janelle Griffin: janelle_griffin@health.qld.gov.au.

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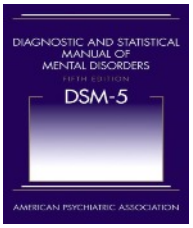
Dementia News is an Australian free twice-monthly newsletter for individuals with dementia, their families and carers, and professionals in the field. It provides a plain language summary of all the major breakthroughs, opportunities for participation in local research and major events in dementia research. It is a great quick read to keep yourself up-to-date on all the latest in dementia research. The newsletter is distributed by email. To be added to the distribution list or to comment on the current edition please send an email to: Amy.Dobos@alzheimers.org.au

DSM - 5 Criteria (reviewed by K. Cunningham)



The recently published DSM-5 has replaced the previous criteria for dementia or changes to brain functioning and labelled them as **Neurocognitive Disorders**

DSM 5 Diagnostic Criteria Mobile Apps are available for both Iphone and Android mobiles.

(1). A *minor neurocognitive disorder* (with or without behavioural disturbance) is defined as when:

- There is evidence of modest cognitive decline from a previous level of performance in one or more of the domains outlined above based on the concerns of the individual, a knowledgeable informant, or the clinician; and a decline in neurocognitive performance, typically involving test performance in the range of one and two standard deviations below appropriate norms on formal testing or equivalent clinical evaluation
- The cognitive deficits are insufficient to interfere with independence (e.g., instrumental activities of daily living like more complex tasks such as paying bills or managing medications, are preserved), but greater effort compensatory strategies, or accommodation may be required to maintain independence.
- The cognitive deficits do not occur exclusively in the context of a delirium.
- The cognitive deficits are not primarily attributable to another mental disorder (e.g. major depressive disorder, schizophrenia).

(2). A *major neurocognitive disorder* (with or without behavioural disturbance) is defined as when:

- There is evidence of substantial cognitive decline from a previous level of performance in one or more of the domains outlined above based on the concerns of the individual, a knowledgeable informant, or the clinician; and a decline in neurocognitive performance, typically involving test performance in the range of two or standard deviations below appropriate norms on formal testing or equivalent clinical evaluation.
- The cognitive deficits are sufficient to interfere with independence (i.e., requiring assistance with instrumental activities of daily living).
- The cognitive deficits do not occur exclusively in the context of a delirium.
- The cognitive deficits are not primarily attributable to another mental disorder (e.g., major depressive disorder, schizophrenia).

For both Minor and Major Neurocognitive disorder, categorisation is Probable or Possible in reference to coding specification for nosologic distinctions between specific etiological subtypes - (for example Alzheimer's Disease, Huntington's, Vascular disease, Frontotemporal Lobar Degeneration, Traumatic Brain Injury, Parkinson's and so forth) with specific criteria descriptions given.

Other diagnostic guidelines - most recent Diagnostic Criteria and Guidelines for Alzheimer's Disease by National Institute on Aging- Alzheimer's Association workforce.

The National Institute initially set out criteria in 1984 and this was universally adopted. In order to keep up with the scientific advances in the AD area, in 2009 a revision began of the criteria. The revised criteria is outlined below and iincludes consideration of biomarkers, which the DSM 5 does not. Biomarkers are increasingly shown to be promising as aiding in determination in the pre-clinical stage of AD.

1). Identify three stages of Alzheimer's disease, with the first occurring before symptoms such as memory loss develop.

(a).Pre-clinical Alzheimer's disease - individuals have measurable changes in the brain, cerebrospinal fluid and/or blood (biomarkers) that indicate the earliest signs of disease, but they have not yet developed symptoms such as memory loss. This pre-clinical or pre-symptomatic stage reflects current thinking that Alzheimer's-related brain changes may begin 20 years or more before symptoms occur.

(b). MCI due to Alzheimer's disease - Individuals with MCI have mild but measurable changes in thinking abilities that are noticeable to the person affected and to family members and friends, but that do not affect the individual's ability to carry out everyday activities. Studies indicate that as many as 10 to 20 percent of people age 65 or older have MCI.

(c). Dementia due to Alzheimer's disease - characterised by memory, thinking and behavioral symptoms that impair a person's ability to function in daily life and that are caused by Alzheimer's disease-related brain changes.

(2.) Incorporation of biomarker tests. A biomarker is a biological factor that can be measured to indicate the presence or absence of disease, or the risk of developing a disease (e.g., blood glucose level is a biomarker of diabetes, and cholesterol level is a biomarker of heart disease risk). Levels of certain proteins in fluid (for example, levels of beta-amyloid and tau in the cerebrospinal fluid and blood) are among several factors being studied as possible biomarkers for Alzheimer's.

- Jack et al. (2011). Introduction to the recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association,* Vol: 7(3), pp. 257-262.

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- Sperling et al. (2011).The diagnosis of dementia due to Alzheimer's disease: Recommendations from the National Institute on Aging and the Alzheimer's Association workgroup. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association,* Vol: 7 (3), pp. 280-292

  http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3312024/

- Albert et al. (2011). Toward defining the preclinical stages of Alzheimer's disease: Recommendations from the National Institute on Aging and the Alzheimer's Association workgroup, *Alzheimer's & Dementia: The Journal of the Alzheimer's Association,* Vol. 7 (3), pp. 270-279.

  http://www.alzheimersanddementia.com/article/S1552-5260(11)00104-X/fulltext

- Albert et al. (2011). The diagnosis of mild cognitive impairment due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association,* Vol: 7 (3), p.270-279.

  http://www.alzheimersanddementia.com/article/S1552-5260(11)00104-X/fulltext

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Article Reviews

(by K. Cunningham)

mTBI and motor function

Heitger, M.H., Jones, R.D., Dalrymple-Alford, J.C., Frampton, C.M., Ardagh, M.W. & Anderson, T.J. (2007). Mild head injury - a close relationship between motor function at post-injury and overall recovery at 3 and 6 months. *Jnr of the Neurological Sciences,* Vol. 253, pp. 34-47.

In this New Zealand study the authors examined whether early eye and arm motor function, and the level of post-injury cerebral dysfunction manifested in motor control, related systematically to recovery at 3 and 6 months after mild closed head injury (CHI). Oculomotor function, upper-limb visuomotor performance and cognitive status was assessed and compared to self-ratings of injury related symptoms and the SF-36 Health Survey.

The findings suggest that post-injury motor function, and in particular eye movement performance, may have potential in providing useful indications of outcome, and that early assessment of eye and arm motor function may contribute to a prospective quantification of functional recovery. Instrumented motor testing may provide an objective, quantitative assessment able to improve prediction of outcome while having the advantage of being entirely independent from patient self-report.

INECO Frontal Screening

Torralva, T., Roca, M., Gleichgerrcht, E., Lopez, P. & Manes, F. (2009). INECO Frontal Screening (IFS): A brief, sensitive, and specific tool to assess executive functions in dementia. *Jnr of the International Neuropsychological Society,* pp. 1-10.

Assessment of executive functions in dementia is limited in most cognitive screening tools. The IFS provides a specific screening with brief tests of motor series, interference sensitivity, inhibitory control, digits backward, verbal working memory, spatial working memory, abstraction capacity (proverbs), and also verbal inhibitory control (abbreviated Hayling initiation/inhibition word test). The test is outlined in the article Appendix for ready use. Using a cutoff point of 25 points sensitivity of the IFS was 96.2%, and specificity was 91.5% in differentiating controls from patients with dementia. The authors report that one of the most reliable findings of the utility of the IFS is the concurrent validity between their test and some of the most classical executive tests available. Thee IFS may be helpful in the differential diagnosis of FTD and AD, given bvFTD patients exhibited a more severe executive dysfunction as compared with patients with AD (with better discriminant ability than the Frontal Assessment Battery (FAB).

Child premorbid IQ

Schoenberg, M.R., Lange, R.T., Saklofske, D.H., Suarez, M. & Brickell, T.A. (2008). Validation of the Child Premorbid Intelligence Estimate Method to predict premorbid Wechsler Intelligence Scale for Children - Fourth Edition Full Scale IQ among children with brain injury. *Psychological Assessment*, Vol. 20 (4), pp. 377-384.

In a previous study, Schoenberg and colleagues proposed the Child Premorbid Intelligence Estimate (CPIE) which included 12 algorithms to predict FSIQ. In their current study results supported the clinical application of the CPIE algoriithms. It was emphasised that limitations to estimating individual premorbid ability, including statistical and developmental factors still needed to be considered.

Determination of premorbid IQ for comparison purposes after injury holds a number of challenges, which include the complication of ongoing neurodevelopment interacting with neurophysiological and psychosocial processes. While the CPIE algorithms are unable to account for all variables impacting in an individual's FSIQ, it can be useful, along with other relevant information, for consideration in interpretation of a child's prior abilities.

Cognitive profile of paediatric and young persons with anorexia - Ravello neuropsychological screen.

Stedal, K., Rose, M., Frampton, I., Landro, N.I. & Lask, B. (2012). Neuropsychological profile of children, adolescents and young adults with Anorexia Nervosa. *Arch Clin Neuropsychology,* Vol. 27 (3). P. 329-327.

A sample of 155 patients ranging from age 9 to 27 years (primarily females) were assessed using a specially developed test battery (Ravello Profile), made up of commonly used neuropsychological tests.

Findings suggested anorexic patients showed common relative weaknesses in visuospatial memory, central coherence and set-shifting. While limitations are potentially present he study does utilise one of the largest subject group undertaken to date. As suggested by the authors, recognition of cognitive impairment in this patient group can assist in individual tailoring of interventions. Profiles can also help determine which areas of functioning are intact, as well as developing alternative coping strategies that aim to

Paediatric anorexia nervosa and use of NEPSY II

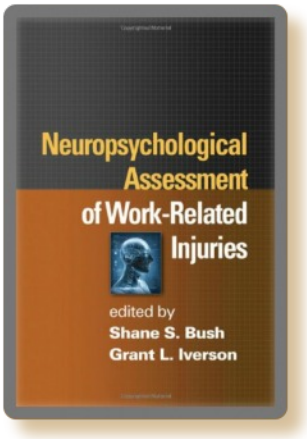
Caleroni, S., Muratori, F., Leggero, A.N., Apicella, F., Balottin, U., Carigi, T., Maestro,

S., Fabbro, F. & Urgesi, C. (2013). Neuropsychological functioning in children and adolescents with restrictive-type anorexia nervosa: an indepth investigation with NEPSY II. *Jnr of Clinical and Experimental Neuropsychology*, Vol: 35 (2), pp. 167-179.

The authors suggest that a marginally impaired and enhanced performance was independent from illness duration and starvation degree, suggesting that it may preexist and represent a vulnerability factor for the disease onset in this group.

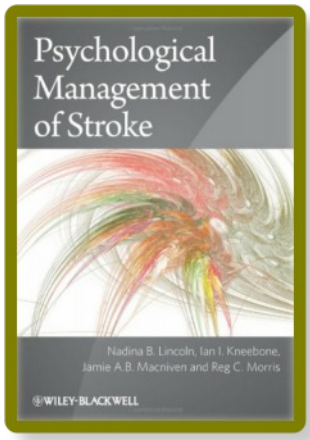
Book reviews

Reviewer: Kay Cunningham



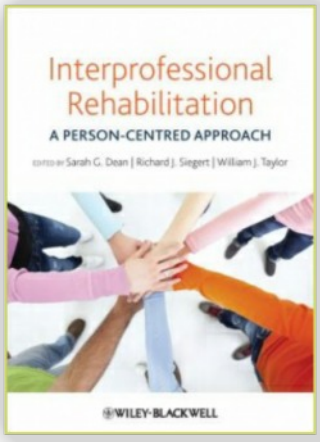
Bush, S.S. & Iverson, G.L. (2012)(Eds.). Neuropsychological Assessment of Work-related Injuries. The Guilford Press.

Work related injuries are a common feature in neuropsychological assessments, and this text specifically focuses on the wide ranging issues (cognitive and biopsychosocial) relating to this area. As well as conditions such as traumatic brain injury through workplace and sports injuries, electrical injuries, and neurotoxic exposure, chapters on mental health issues in the context of the work such as post-traumatic stress disorder, depression, and neuropsychological aspects of chronic pain are covered. A third section is on professional practice issues such as the clinician's perspective on neuropsychological evaluation and treatment. Although written in relation to the American context overall the primary content of this book is applicable to the New Zealand situation. A useful text written by well respected researchers.



Lincoln, N.B., Kneebone, I.I., Macniven, J.A.B. & Morris, R.C. (2012). Psychological Management of Stroke. Wiley-Blackwell. Also available on Kindle.

This text pulls together recent current research relating to assessment, treatment and psychological well-being of stroke patients. Background is given on on neuropsychological symptoms and assessment of strokes. Chapters include a range of areas such as neurological basis of stroke and related disorders, clinical stroke services, cognitive effects (for example, driving after stroke, decision making and issues related to mental capacity, neuropsychological aspects of rehabilitation, and challenging behaviours), emotional and social effects of stroke and their management. Again, a great text providing evidence based practice on the latest models of clinical care.. A must for any clinician or service working with stroke patients.

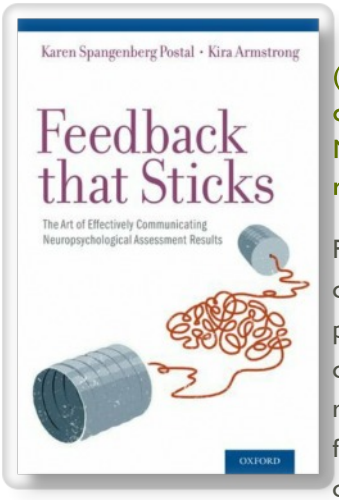


Taylor, W.J., Dearn, S.G., Siegert, R.J. (2012). Interprofessional Rehabilitation: a person-centred approach. Wiley-Blackwell. Also available on Kindle.

Written by rehabilitation specialists from a range of disciplines this text sets out a model of practice which is tailored to the specific needs of the client. It also outlines how inter-professionalism in a range of clinical contexts can be achieved with the client or patient actively involved in all stages of the process.

This is a great text not only for teams that are physically working on site together but also in the context of individual community based providers working with others to achieve a client focused approach.

One of the key authors (Professor Richard Siegert) both teaches and researches in this area, within the New Zealand context, through his work at AUT.

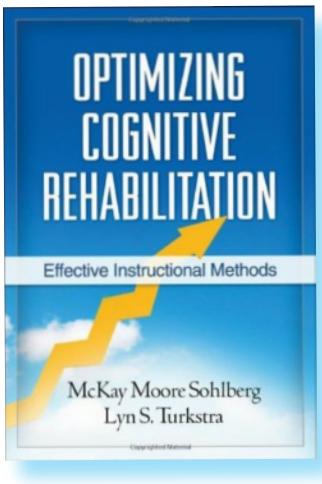


Postal, K. & Armstrong, K. (2013). Feedback that sticks: the art of effectively communicating Neuropsychological Assessment results. Oxford University Press.

Providing feedback to patients/clients can often been a challenging project, particularly when an assessment outcome may potentially be poorly received by a patient and/or their family. While there have been the occasionally article, until now there has not been a book which provides very clear examples/suggestions on how feedback can be given. A number of imminent clinicians have contributed to this book, including Professor Erin Bigler, Dr Gregory, Lee, Professor Muriel Lezak, Dr Dorothy Waber and Dr Keith Owen Yeates, to name a few. The authors undertook in-depth interviews of 85 experienced clinicians while feedback was being given to to patients. The book starts with what feedback is, why some feedback sticks, how is it presented, and putting feedback to work with patients with multiple populations. Specific examples of how to phrase feedback in regards to neuropsychological findings (including how specific functions in the brain work and how deficits can both present and be managed), poor effort findings, medical/psychiatric terms and conditions (organic and somatoform), and a range of other very useful topics. Relevant metaphors and analogies are provided, in a plain language form appropriate to the population groups being seen.

Additionally, the book covers both adult and paediatric populations, and includes chapters on Dementia, ADHD, Somatoform Disorders, Psychiatric illness, Learning disorders and Developmental Disability, Autistic Spectrum Disorders, Acquired Brain Injury (TBI and Stroke), Neurological Disorders, Effort, communicating assessment results to other professionals, and report writing and written communication. Recommended as a useful resource for providing additional "tips" for effective feedback communication.

From a research perspective, see Fallows, R.R. & Hilsbeck, R.C. (2013). Comparing two methods of delivering neuropsychological feedback. *Archives of Clinical Neuropsychology*, Vol. 28, pp. 180-188. The study looks at the effectiveness of receiving oral feedback only or oral feedback with written information, with recall evaluated immediately after feedback and one month later.



Sohlberg, M.M. & Turkstra, L.S. (2011). Optimising Cognitive Rehabilitation. The Guilford Press.

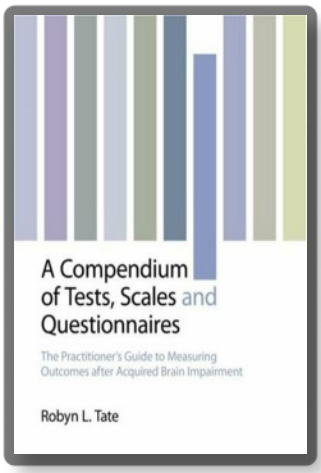
Both Sohlberg and Turkstra are well known for their work in neuro-rehabilitation and in particular the ability to translate evidence based models into very practical strategies. In the foreword by Barbara Wilson she describes the authors as "*two of the most eminent practitioners in neurorehabilitation*".

This book provides a clear training framework using the PIE method (Plan, Implement and Evaluate) with suggestions for external cognitive aids, metacognitive strategies, and social skills training all from person centred focus.

Case studies are provided and a very useful range of worksheets that can be used for clients/patients, and including progress monitoring.

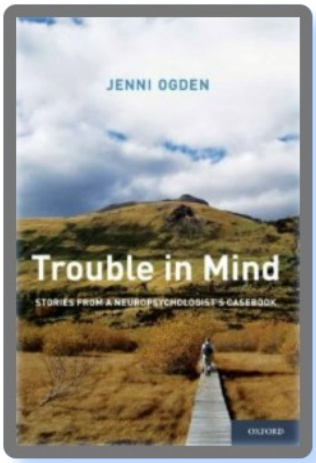
PsychBITE - Psychological Database for Brain Impairment Treatment Efficacy. Members of the original team multidisciplinary group of researchers in Sydney, Australia and include Prof Robyn Tate, Prof Skye McDonald, Dr Anne Moseley, Dr Michael Perdices and A/Prof Leanne Togher.

As described in the PsycBITE introduction, this is *"a database that catalogues studies of cognitive, behavioural and other treatments for psychological problems and issues occurring as a consequence of acquired brain impairment (ABI). These studies are rated for their methodological quality, evaluating various aspects of scientific rigour. The website gives clinicians, students and researchers free access to the PsycBITE database, thus enabling you to search for articles which might be relevant for your clinical practice or your research in a time-efficient way."*



Tate, R.L. (2010). A Compendium of Tests, Scales and Questionnaires: The Practitioner's Guide to Measuring Outcomes after Acquired Brain Injury. Psychology Press.

Finding suitable instruments to measure signs and symptom commonly evident in adult neurological conditions (progressive and non-progressive) is often time consuming and not necessarily easily accessible. This compendium takes all the work out of finding appropriate measures as it reviews about 150 specialised instruments, with succinct source and purpose descriptions, scale development information, administration procedures, response format and scoring. Psychometric properties of each measure are also given. Where instruments are in the public domain, these are provided for copying. While a relatively expensive book, this can be a very useful resource for clinicians working in inpatient rehab and community situations whereby patient conditions are in the moderate to severe range. Part A provides scales for body functions (e.g., sensory, cognitive, physical)/motor; Part B provides scales of activities and participation, Part C outlines contextual factors, with Part D including multi-domain scales (e.g., QOL).



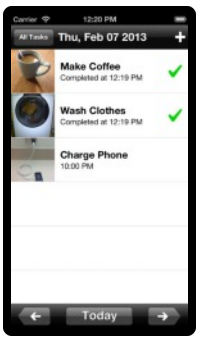
Ogden, J. (2012). Trouble in mind: stories from a Neuropsychologist's casebook. Oxford Uni Press. Also available on Kindle.

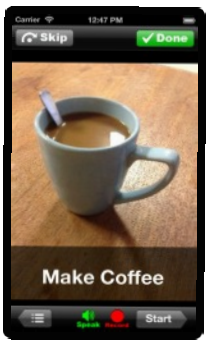
Dr Jennie Ogden is one of New Zealand's pioneers in the field of neuropsychology and is also internationally renowned for her clinical expertise and research in brain injury. "Trouble in mind" is a sequel to the still widely used"Fractured Minds". Following in the same tradition of providing an easy to read yet very informative narrative , this book looks at the journeys of recovery for patients with various neurological conditions, and their families, as well as a neuropsychological description that is an invaluable learning opportunity for the reader. As succinctly written by Professor Michael Corballis (Auckland University) "*Ogden brilliantly illustrates the role of clinician as detective, combining the expertise of a neuroscientist, the insight of a psychologist, and the eye of a novelist. The book is wonderfully accessible to anyone interested in how the brain works*".

APPS AS COMPENSATORY AIDS FOR BRAIN INJURY REHABILITATION

CanPlan for iPhone and iPad is a free app from the University of Victoria, Australia designed to promote independence and confidence for individuals with cognitive problems. Activities for all types can be broken down into a sequence of easy to follow steps and reinforced with optional text and audio. Other features include scheduling and reminding prompts.

A similar app is called Marti from Infologique Inc. however this has a cost of $49.99.





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TEST REVIEWS

by K Cunningham

BcoS (Brain Behaviour Analysis) (Humphreys, Bickerton, Samson & Riddoch) Published in 2012 by Psychology Press, this is an hour long test for the screening of a range of cogntiive functions, including attention, executive functions, spatial awareness, speech and language processing, action planning and control, memory, and number processing. It has been developed by Neuropsychologists and Occupational therapsits at the University of Birmingham for a range of brain injury conditions including stroke, TBI, carbon monoxied poisoning and dementia. It provides a range of tasks that are not necessary available in other screening batteries, such as sentence construction, nonword reading, visual and tactile extinctiion. There are also sufficient items in each section to more fully test than some of the more basic cogntiive screens. Easy to read manual and scoring, Well worth looking at as a more comprehensive screen which also provides specific and novel cognitive profiling across a range of cognitive processes.

Repeatable Battery for the Assessment of Neuropsychological Status Update (published 2012). By Pearsons (Psych Corp).

The new updated RBANS is available, with the additional features:

- Four Parallel Forms - for retest purposes.
- Downward age extension - now use with clients from 12 years (up to 89 years 11 months).
- Subtest scores – Allowing for enhanced interpretation.
- Administration time- 30 minutes
- Subtest scores – Allows for for specific interpretation

Q-interactive package by Pearsons. Currently under development.

Pearsons are in the process of completing development of a web based and tablet-based (iPad) system whereby stimulus books for batteries such as WAIS IV, WISC IV, CVLT II and CVLT-C, DKEFS, NEPSY II, and CMS are replaced with software access to these tests. One iPad is used for the examiner as the stimulus "book" and then a second iPad is for the examiner to read instructions from, record and score responses. Rather than buying test batteries, instead there is a cost of an annual licence and price per subtest administration. An update on the availability of this system for New Zealand will be provided in the next Newsletter. For an overview go to http://www.helloq.com/overview/our-vision.html.

WPPSI-IV - ANZ standardisation project.

Pearsons are currently collecting data for the WPPSI-IV Australian and New Zealand adaptation and looking for clinicians to assist. The new WPPSI will include new working memory subtests (Picture Memory and Zoo Locations). There will be three levels of interpretation- Full Scale, Primary Index Scale and Ancillary Index Scale levels.

www.pearsonclinical.com.au/page/wppsi-iv_standardisation_project

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Some of upcoming Conferences for 2013

July/August 2013		
8 – 9th July	10th Conference of the Neuropsychological Rehabilitation Special Interest Group of the WFNR	Amsterdam, Netherlands
9 - 11th July	INS 2013 Mid-Year Meeting	Amsterdam, Netherlands
9 - 11th July	SickKids Centre for Brain and Behaviour 3rd Biennial Conference Brain injury in children	Toronto, Canada
4 – 7th August	10th Neurotrauma 2013	Nashville, Tennessee
21 - 24th August	17th Nordic Congress on Cerebrovascular Diseases	Vilnius, Lithuania
Sept/October 2013		
6th Sept	"Demystifying neuropsychology: Practical management of cognitive disorders across the life span" workshop	WA Metro, Australia
6 - 9th Sept	NZPsS Annual Conference "Building Bridges: Dialogues across Psychology" (includes presentations on Dementia, sleep disorders, psychology and the aging).	Auckland, New Zealand
6 – 9th Sept	45th European Brain and Behaviour Society Meeting	Munich Germany
11 - 13th Sept	International Neurorehabilitation Symposium	Zurich, Switzerland
12 - 14th Sept	4th Meeting of the Federation of European Societies of Neuropsychology	Berlin, Germany
18 - 21st Sept	North American Brain Injury Society 11th Annual Conference on Brain Injury	New Orleans, Louisiana
23 - 24th Sept	First International Conference on Prevention of FASD	Edmonton, Alberta, Canada
25 -27th Sept	9th Conference of the International Neuropsychiatric Assn.	Chicago, Illinois.
30 Sept - 1 Oct	International Conference on Psychology, Autism and Alzheimer's Disease	San Antonio, USA
1 - 3rd Oct	3rd World Parkinson Congress	Montreal, Canada
3 - 5th Oct	7th Canadian Conference on Dementia	Vancouver, Canada
3 - 6th Oct	19th APS Clinical Neuropsychology Conference	Brisbane, Queensland
16 - 19th Oct	National Academy of Neuropsychology 33rd Annual Conference	San Diego, California
17 - 20th Oct	8th International Congress on Vascular Dementia & The First Cognitive Impairment European	Athens, Greece
18 - 19th Oct	SSIF Conference Cognitive dysfunction in MS: New insights and clinical management	Taormina, Italy
Nov/December 2013		
5 - 7th Nov	8th Annual UK Dementia Congress	Nottingham, UK
6 - 8th Nov	27th Annual Scientific Meeting of Epilepsy Society of Australia	Sydney, Australia
7 - 9th Nov	CHADD Annual International Conference on ADHD	Crystal City, Washington
19 - 20th Nov	Australasian FASD Conference	Brisbane, Australia
12 - 16th Nov	ACRM Progress in Rehab Research	Orlando, Florida
18 - 19th Nov	1st Annual International Conference on Neuroscience and Neurobiology Research	Bangkok, Thailand
20 - 23rd Nov	13th International Forum on Mood and Anxiety Disorders (includes research on cognitive dysfunction)	Monte-Carlo, Monaco
8 - 11th -Dec	XX World Congress on Parkinson's Disease and Related Disorders	Geneva, Switzerland

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Some of upcoming Conferences for 2014

Feb/March 2014		
12 - 15th Feb	INS 42nd Annual meeting "Translating evidence into practice"	Seattle, Washington
12 -14th Feb	International Stroke Conference	San Diego
18 - 21st March	16th Annual Conference of The International Society for Bipolar Disorders (includes relevant brain functioning research).	Seoul, South Korea
19 - 22nd March	10th World Congress on Brain Injury	San Francisco, California
19 - 23rd March	Symposium of The International Neurotrauma Society	Budapest, Hungary
27 - 29th March	Society of Pediatric Psychology Annual Conference	Philadelphia, Pa.
3 - 5th April	3rd International Congress on Epilepsy, Brain and Mind	Brno, Czech Republic
April/May 2014		
8 - 12th April	8th World Congress for Neurorehabilitation	Istanbul, Turkey
12 -13th April	Australian Clinical Psychology Assn and NZCCP joint conference	Christchurch, New Zealand
8 - 10th May	ASSBI's Annual Brain Impairment Conference www.assbi.com.au; contact admin@assbi.com.au)	Freemantle,Western Australia
July/August 2014		
14 - 15th July	11th Conference of the Neuropsychological Rehabilitation Special Interest Group of the WFNR will be held in Limassol, Cyprus, (website is www.mers.vpweb.com.au; contact is mers@exetel.com.au)	Greece
24 - 27th Aug	10th Asian & Oceania Epilepsy Congress	Singapore
Sept/October 2014		
Sept 2014	8th International conference on Frontotemporal dementias	UK
Date yet to be given	AACN (American Academy of Clinical Neuropsychology)	New York
20 - 22nd Oct	Third EUFASD (Foetal Alcohol) Conference	Rome, Italy.
22 - 25th Oct	9th World Stroke Congress	Istanbul, Turkey
December 2014		
4 - 7th Dec	10th International Congress on Mental Dysfunction and Non-Motor Features of Parkinson's Disease & Related Disorders	Nice, France

Future Newsletters

The topic of NZ Cultural considerations in Neuropsychology was planned for this current edition, but contributions were not available at this time. It is intended these will be covered in a future Newsletter. Some of the subject areas for subsequent Newsletters will include such topics as Foetal Alcohol Syndrome, white matter dysfunction and effects on functioning, sex differences in brain functioning, Frontal lobe dementia, executive functioning in children (issues, tests, and resources), PTSD and TBI and latest research in neurological conditions such as Parkinson's. If you have a particular topic you would like covered please let us know. Psychology Students will be encouraged to provide summaries of research in neuropsychologically related areas. If you have a great a*rticle, book, test, or case study* you can give us a brief review on, any *conferences/workshops, research projects* you are doing or know of, *contribution* to the Special topic or any *additional resources or comments* on past topics please let us know. Email ideas or contributions and requests for past edition to kay.cunningham@xtra.co.nz (Newsletter Editor).

Thanks to Whaea Mere Maika, kaiako at Richmond Road Primary School and Elisa Lavelle Wijohn. for support with the bilingual translation on p.1.

NZSIGN Mandate

To provide the following opportunities for group members to:

- Meet others with an interest /expertise in neuropsychology and to increase knowledge and support via discussion of cases, topic areas, and issues relevant to the practice of neuropsychology in Aotearoa/New Zealand;
- Share ideas and information via an online forum on the NZCCP website;
- Share information regarding upcoming training events relevant to neuropsychology;
- Provide workshops and other events related to neuropsychology to contribute to the continuing professional development of group members;
- Align with international standard of practice as a long term aim through continuous improvement of the practice of neuropsychology in New Zealand.

If you want to know more about NZSIGN, email Dr Nic Ward (Coordinator of NZSIGN)
Nic@insightteam.co.nz

NZSIGN has an email list for announcements and discussion. To subscribe, send an email with brief information on your background in neuropsychology

to: nzsign-subscribe@synapseproject.org

References for MNB Battery

Meyers, J.E., Miller, D.M. & Tuita, A.R.R. (2013).Using pattern analysis matching to differentiate TBI and PTSD in a military Sample. *Applied Neuropsychology* , p. 1-9,

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