

## **THE SPECTRUM OF PREVENTION– ARE THE RESEARCH CHALLENGES THE SAME ?**

Adrian Bauman

Sesquicentenary Professor of Public Health (Behavioural Epidemiology and Health Promotion)  
Medical Foundation Fellow and Director, Centre for Physical Activity and Health  
School of Public Health , University of Sydney

An important component of health research investigates and explores disease prevention. This encompasses a range of ideas, from primordial prevention [changing the social fabric and economic conditions to improve health], through primary prevention [before disease processes have commenced] to clinical prevention studies [secondary and tertiary prevention]. The research tasks, challenges and even underpinning research values are different across the spectrum of prevention. Taking a public health approach may pose different epidemiological challenges to the choice of research methods, study design and measurement, compared to clinical prevention studies. Examples from tobacco prevention, and physical activity and public health illustrate these issues. The idea of a fixed hierarchy of ranking research designs to assess the quality of 'evidence' for policy makers is challenged in the current multi-disciplinary world of prevention research.

## **PREVENTING CHRONIC STUTTERING**

Mark Onslow and Ann Packman

Australian Centre for Stuttering Research, Faculty of Health Sciences, The University of Sydney

This presentation covers what it is we are trying to prevent, how we are trying to prevent it, and whether we really can succeed in preventing it. The earliest known example of the effects of chronic stuttering can be seen in the aspiring Greek orator Demosthenes. Stuttering is disfiguring and significantly reduces effective communication. It was certainly so for Demosthenes, threatening his career aspirations and causing him extreme social anxiety along the way. A possible way of preventing stuttering from taking its dramatic developmental course is to treat it effectively in the preschool years. The Lidcombe Program is a behaviour modification program that is conducted by parents in the child's everyday environment. Phase II clinical trials showed great promise for this treatment, however Phase II trials notoriously overestimate effect sizes. A recent randomised controlled trial published in the British Medical Journal, however, reported large effect sizes. Now that it is known that this treatment is efficacious, it remains to determine whether it is effective at the population level.

## **PREVENTION OF MYOPIA: DOES ENVIRONMENT PLAY A PART?**

Kathryn Rose

School of Applied Vision Sciences, Faculty of Health Sciences, University of Sydney

Myopia, also known as shortsightedness, is a common ocular condition that has become the subject of increased scientific attention, as the prevalence world-wide appears to be on the rise. Myopia can be treated palliatively by expensive optical and/or surgical means, but visual impairment and blindness from the complications of high myopia cannot be prevented. Late in life, even low myopia is associated with an increased risk of both glaucoma and cataract. While myopia is associated with some genetic syndromes and there appears to be familial association, the rapid rise of the prevalence of myopia in some East Asian countries over a fifty year period, strongly implicates environmental exposures. The strongest associations with myopia appear to be highly urbanised environments and high levels of scholastic achievement. The Sydney Myopia Study is to date, the most comprehensive examination of risk factors for the development of myopia. The prevalence of myopia in Australia appears to be lower than in East Asian cities, but there is wide variation between schools with different scholastic levels of achievement. The precise nature of these specific factors, and determination of the apparently protective factors associated with Australian lifestyle have yet to be fully elicited. It is possible that these factors may be modifiable and lead to prevention strategies for future generations.

## **DEVELOPING LANGUAGE ABILITIES: A PREVENTION PROGRAM FOR PARENTS OF YOUNG CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT.**

Natalie Munro, Kerrie Lee and Elise Baker

School of Communication Sciences and Disorders, Faculty of Health Sciences, University of Sydney.

Children with specific language impairment (SLI) experience difficulties developing language, despite normal cognitive, behavioural and sensory abilities (Leonard, 1997). These children are four times more likely to have reading difficulties compared to their typically developing peers (Catts et al, 2001) and therefore constitute an at-risk population for future academic failure. The present study implemented an intervention program for children with SLI, based on training their parents to use story-book activities to promote language and early literacy skills. The content of the training program originates from research literature demonstrating the efficacy of story-book reading and phonological awareness training to later reading success (Snow, 1998). Thirteen parents attended a 6-week program (2-hours per week) where they received education on spoken and written language development, as well as training on applying specific techniques within storybook and related activities. Parents then implemented a 10-minute per day story-book activity at home with their child for the 6-weeks. The effects of the training were measured in terms of its impact on parent behaviours during story-book activities with their child as well as child related outcomes for language and early literacy abilities. The results showed that, post-training, the parents used significantly more language and early literacy facilitation techniques as well as a wider variety of these techniques, during story-book interactions with their child. Measures of the child's language and early literacy abilities, post-training, suggested that the parent program also had a positive impact on these skills. Results support the implementation of parent-based language and early literacy interventions for children with SLI.

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## **PREVENTING CHRONICITY IN MAJOR DEPRESSIVE DISORDER - USING COGNITIVE TESTING TO IDENTIFY INDIVIDUALS AT RISK OF POOR OUTCOMES**

Adrienne Withall<sup>1</sup>; Lynne Harris<sup>1</sup> & Steve Cumming<sup>1</sup>

School of Behavioural and Community Health Sciences<sup>1</sup> Faculty of Health Sciences, University of Sydney.

Persons with major depressive disorder often have a chronic course of illness consisting of recurrent episodes with marked psychosocial disability. One of the clinical signs of depression is poor cognitive function, often reported as deficits in concentration, decision-making and organisation. These symptoms are frustrating and disheartening, can persist after discharge and cause functional impairment. This study was conducted to longitudinally examine neuropsychological function in depression with a focus on executive function. This study also examined the relationship between neuropsychological function and clinical and psychosocial outcome. Psychiatric (HAM-17, FrSBe, SOFAS) and neuropsychological assessments (NART, Reaction Time, Digit Span, CVLT, COWAT, WSCT, Stroop, Prospective memory, Six Elements Test) were administered at admission and 3-months post-discharge to 52 depressed participants (aged 20-60; recruited from Royal North Shore Hospital and Northside Clinic) and 30 age, sex and IQ-matched controls. At follow-up the depressed group, who had all recovered clinically, had significant deficits on delayed verbal memory, prospective memory, SET and WCST. These tests require organisation, self-monitoring and review of performance. Using hierarchical regressions, poor clinical outcome was associated with worse performance on delayed verbal memory and the WCST at admission. Poor psychosocial outcome was associated with worse performance on prospective memory and WCST. Depressed participants showed impairments in executive function that persisted beyond clinical recovery. These skills are closely associated with daily function. Furthermore, memory and executive impairment at admission predicted those with poorer clinical and/or social and occupational functioning three

months after discharge. Cognitive testing at hospital admission may thus be a powerful instrument to identify individuals at risk of poorer outcomes. Such individuals may need to be monitored more closely following discharge and additional interventions used in order to prevent their depression having a chronic course.

### **CAN THE MCKENZIE METHOD PREVENT CHRONIC LOW BACK PAIN?**

Luciana AC Machado<sup>1</sup>, Chris G Maher<sup>1</sup>, Robert D Herbert<sup>1</sup>, Helen Clare<sup>2</sup> and James McAuley<sup>1</sup>

<sup>1</sup>Back Pain Research Group, School of Physiotherapy, University of Sydney; <sup>2</sup>Private Practice, 16 Ayres Road St Ives NSW 2075.

Low back pain (LBP) is a highly prevalent and costly condition. In NSW, back injuries account for 30% of the cost of workplace injuries, with a gross incurred cost of \$229 million in 2002/03.<sup>1</sup> Treatment for patients with chronic complaints represents most of the costs in LBP management. Finding effective interventions for patients with acute LBP is important because it prevents the development of chronicity and therefore avoids more complex and costly treatment.

The McKenzie Method is a popular physiotherapy treatment for LBP that focuses on the rapid improvement of symptoms as well as on the prevention of further pain episodes.<sup>2</sup> However, there is no clear evidence that the McKenzie Method has a role in preventing patients with an acute episode of LBP developing chronic symptoms.

As part of a larger clinical trial on the effectiveness of the McKenzie Method for acute LBP,<sup>3</sup> we will use multiple regression models to predict whether the addition of the McKenzie Method to general practitioner care prevents chronicity when compared to general practitioner care alone. This study is ongoing and results are expected to be available by the end of 2007.

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2. McKenzie R, May S (2003). Mechanical diagnosis & therapy, vol. 1, 2nd ed. Waikanae: Spinal Publications New Zealand Ltd.

3. Luciana AC Machado, Chris G Maher, Robert D Herbert et al (2005). BMC Musculoskeletal Disorders 6:50.

### **SUPPORTIVE DEVICES FOR PREVENTING AND TREATING SUBLUXATION OF THE SHOULDER AFTER STROKE**

Louise Ada, Colleen Canning, Anchalee Foongchomcheay, ,

School of Physiotherapy, Faculty of Health Sciences, The University of Sydney

The aim of this review was to investigate the effect of supportive devices (slings, wheelchair attachments and external shoulder orthoses) in preventing subluxation, re-positioning the head of humerus in the glenoid fossa, decreasing pain, increasing function and adversely increasing contracture in the shoulder after stroke.

We identified four trials (142 participants) that met the inclusion criteria. One low quality trial examined the use of a hemisling and reported that no participants had subluxation greater than 10 mm after 2-3 weeks of wearing a hemisling vs not wearing one. Furthermore, the same number of participants in each group had lost more than 30 degrees of shoulder external rotation (Peto OR=1.00, 95% CI 0.1 to 9.3) while more participants in the hemisling group had pain (Peto OR=8.7, 95% CI 1.1 to 67.1) than in the control group although the pain was slight. Three (two high and one low quality) trials examined the use of strapping. Strapping the shoulder was effective in delaying the onset of pain (WMD=14 days, 95% CI 9.7 to 17.8), but was ineffective in reducing pain severity (WMD=0.7 cm on a visual analogue scale, 95% CI -2.0 to 0.7), increasing upper limb function (WMD =0.8, 95% CI -1.5 to 3.1) or affecting the degree of contracture (WMD=-1.4 degrees, 95% CI -10.9 to 8.1) at the shoulder.

There is insufficient evidence to conclude whether slings and wheelchair attachments prevent subluxation, decrease pain, increase function or adversely increase contracture in the shoulder after stroke. There is some evidence that strapping the affected shoulder delays the onset of

pain but does not decrease it. There is also some evidence that strapping does not increase function nor adversely increase contracture.

## **THE EFFECTS OF PROSTATE CANCER ON SEXUAL INTIMACY IN HETEROSEXUAL RELATIONSHIPS**

Maria Caetano, Weerakoon, P.Knight, P

Graduate Program in Sexual Health, School of Biomedical Sciences, University of Sydney

**Aim:** To identify the impacts of the diagnosis and treatment of prostate cancer on psychological, physiological and behavioural intimacy in heterosexual couple. **Method:** Subjects will be recruited from urology clinics in the Sydney area. Data will be collected by qualitative methods in the format of structured in depth interviews. Male and females will be interviewed separately first and then together as a couple to determine the effects prostate cancer on the expression of intimacy in the psychological, physiological and behavioural domains. **Results:** This study will identify the ways in

which patients and their partners adapt to challenges posed by prostate cancer and its treatment. In particular, it will focus on the ways in which intimacy needs can be met in response to the psychological, physiological and behavioural changes resulting from the disease. This information will provide an evidence base for the production of educational materials that will assist sufferers of prostate cancer adapt to the changes resulting from their disease, and help their spouses and health professionals treating them develop strategies that ensure intimacy needs are met. **Discussion:** The diagnosis of cancer impacts on sexual identity, self-esteem, sexual functioning and intimacy. In order to provide holistic care, these effects must be addressed. The negative impact of treatment for prostate cancer on health related quality of life (HRQOL) has been widely studied. No studies of the effects of prostate cancer on intimacy have been reported. Intimacy is a serious, relevant concept in modern relationships. Intimacy can be assessed in terms of psychological intimacy, which has positive communication as a central theme, and by the occurrence of specific interpersonal behaviours such as touching, holding, stroking, kissing and sexual intercourse. The impact of prostate cancer on these activities may contribute to the overall decrease in HRQOL reported. Therefore, addressing ways to minimise its effects on intimacy should be of significant benefit to patients and their spouses.

## **USING RESEARCH EVIDENCE IN NURSING HOME CARE: A STUDY OF TAIWANESE NURSES' AND NURSING MANAGERS' PERCEPTION.**

Hui Chen Chang, Cherry Russell and Mairwen Jones

School of Behavioural and Community Health Science  
Faculty of Health Science, University of Sydney.

The need for evidence-based practice (EBP) in health care generally and nursing care in particular is well established in hospital settings and has been emphasized in the health care of older people. However, no previous research has focused on its use by nurses in long term care settings such as nursing homes. As Taiwan's population ages, the need for high quality long term residential care will increase. This study explores the perceptions of evidence-based practice (EBP) among registered nurses and nursing managers in Taiwanese nursing homes. It will use a mixed method design involving semi-structured indepth interviews with nursing managers and a questionnaire survey of registered nurses employed in 6 randomly selected nursing homes in the Hsinchu district. Findings will contribute to better understanding the factors that hinder and facilitate the integration of EBP in nursing home care.

This project therefore will explore registered nurses' and nursing managers' perceptions of the usefulness of research for nursing practice, their beliefs about difficulties in implementing research into their daily care for elderly people, and what strategies they see as useful in facilitating its adoption.

The specific research objectives are to:

1. Describe the understanding of EBP held by nurses and nursing managers in long term care settings.

2. Document the extent to which nurses are involved in research and publication activities in long term care settings.
3. Examine the range of attitudes towards research utilization among nurses and nursing managers practising in long term care and factors associated with different views.
4. Describe nurses' and nursing managers' perceptions of barriers to research utilization in these settings.
5. Obtain their views of what strategies may facilitate the development and use of evidence-based practice by nurses in long term care settings.

The project is currently at the stage of preparing for submission of Ethical Approval and contacting the organizations for participation.

## **PREVENTION OF LOSS OF VISUAL CONJUGACY USING EARLY INITIATION OF VOLUNTARY EYELID MOVEMENTS FOLLOWING UNILATERAL FACIAL NERVE PALSY**

Coulson SE<sup>1</sup>, O'Dwyer NJ<sup>2</sup>, Adams RD<sup>1</sup>, Croxson GR<sup>3</sup>

School of Physiotherapy<sup>1</sup> School of Exercise and Sport Science<sup>2</sup>, Faculty of Health Sciences, The University of Sydney; Department of Otolaryngology, Royal Prince Alfred Hospital<sup>3</sup>

**Introduction:** Following facial nerve paralysis (FNP), decreased eyeblink amplitude on the affected side results in incomplete corneal coverage. Consequent problems range from slight ocular irritation to corneal ulceration. To compensate, drive to orbicularis oculi muscles is increased bilaterally, representing Hering's law of equal ocular innervation. To compare with reflexive blink findings, this study investigated speeded voluntary bilateral eye closure. **Materials:** Eleven patients with FNP > one year post-onset and 11 matched controls produced voluntary eye closure and smiles in a three-choice reaction time (RT) paradigm. Digital videotape recorded RTs and movement times (MTs) at 25 frames/second. **Results:** Relative to controls, mean RT for eye closure in FNP patients was increased by 141 ms (34%), whereas smile RTs were the same. Paretic and non-paretic eyes began closure together, so the RT increase was bilaterally symmetrical. MT for closure was increased by 646 ms in the paretic eye, and 26 ms in the non-paretic eye. **Conclusion:** Onset of voluntary eyelid movement was found to be synchronous but markedly delayed bilaterally following FNP. The delay could be related to increased paretic side MT (815 ms compared with 169 ms in controls), since RTs are known to be increased for subsequent longer duration movements, but the bilateral symmetry of the delay suggests it is related to the need to maintain eyelid movement conjugacy, thereby preventing visual input to the eyes from being uncoordinated. The small but significant 26 ms slowing of the non-paretic eyelid may be further evidence of attempts to maximize symmetry of closure. Such symmetry considerations are not crucial for movements at the mouth, where RTs were normal. Hence, the preparation of voluntary eyelid movements following FNP required time-consuming neural processing. This may arise from the central reorganisation of synergy for eye closure, likely to involve both brainstem pathways and the motor cortex bilaterally.

## **NORMAL FLUCTUATION OF LYMPHOEDEMA: ASSESSMENT USING MEASUREMENT TOOLS AND SELF-REPORT**

S Czerniec<sup>1</sup>, SL Kilbreath<sup>1</sup>, L Ward<sup>2</sup>, KM Refshauge<sup>1</sup>, MJ Lee<sup>1</sup>

1. School of Physiotherapy, University of Sydney, NSW
2. School of Molecular and Microbial Sciences, University of Queensland, Qld.

Lymphoedema of the arm is a commonly occurring consequence of surgery and radiotherapy for breast cancer. Early diagnosis of lymphoedema may be important in preventing chronicity of this condition, and detection of any worsening of the condition is important in preventing exacerbation of related symptoms and problems associated with lymphoedema. These include pain, recurrent soft tissue infection and skin changes as well as psychosocial factors such as depression. There is a lack of consensus in the literature on the diagnostic criteria for lymphoedema. There is also a paucity of information on how lymphoedema fluctuates over time and which measurement tools are best able to detect changes in this condition. The absence of normative data results in controversy when defining a worsening of this condition. Our main aims with this research are to determine the normal fluctuation of lymphoedema over

a period of 6 months, to compare the sensitivity of different methods of measuring lymphoedema, and lastly to compare women's self-report of change in their condition with objectively measured changes.

Women with mild to moderate lymphoedema; and an age-matched control group without lymphoedema are participating in the study. Both groups are monitored with three clinical measurement tools: 1) circumferential measures using a tape measure, 2) arm volume measures using a perometer and 3) impedance of fluid within the arm using multiple frequency bioimpedance analysis. Measurements with the tape measure and perometer are standardized to enable direct comparisons. The women in this study are also asked to rate their lymphoedema and related symptoms on a self-report lymphoedema rating scale.

The findings from this study will provide clinicians with information about the behaviour of lymphoedema and the ability of different measurement tools to detect change in this condition. This study will also assist researchers in this area to select appropriate sample sizes for future studies.

## STUDIES ON NEW TRINUCLEAR PALLADIUM COMPOUNDS

M Farhad<sup>1</sup>, F Huq<sup>1</sup> and P Beale<sup>2</sup>

<sup>1</sup>School of Biomedical Sciences, Faculty of Health Sciences, The University of Sydney<sup>2</sup> Sydney Cancer Centre, RPAH, Sydney, Australia.

Currently attention is given to rule-breaker compounds such as multi-centred complexes primarily with the aim of widening spectrum of activity. One such compound is BBR3464 that was prepared by Farrel et al. and shows much greater activity than cisplatin. Huq et al. also prepared a number of Pt-Pd-Pt complexes that have shown significant activity against different cancer cell lines. It was found that the introduction of planaramine ligands bonded to the central metal ion introduces new types of non-covalent interactions that can affect the spectrum of activity. The aim of this project is to investigate structure-activity relationship in trinuclear palladium complexes containing planaramines at different positions. It is suggested that the lability of trinuclear palladium complexes may be decreased by the incorporation of one or more sterically hindered planaramine ligands so that the complexes may exhibit significant antitumour activity. Thus, we have synthesized 6 trinuclear palladium compounds (Figure 1). In MH3, MH4 and MH5 central Pd<sup>2+</sup> ion is bonded to two planar amine ligands whereas in MH6, MH7 and MH8, two terminal Pd<sup>2+</sup> ions are bonded to two planar amine ligands each.

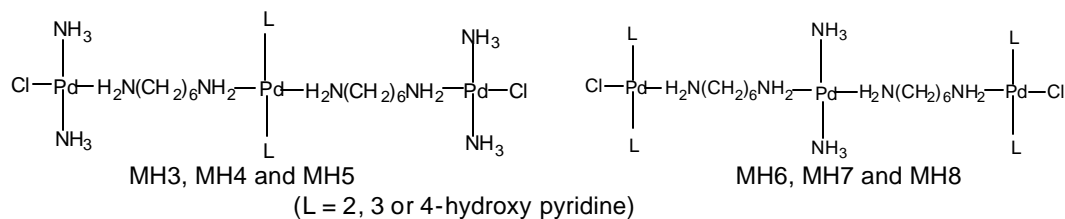


Figure 1: Structures of MH3, MH4, MH5, MH6, MH7 and MH8 (Identity confirmed by micro analyses and spectral studies.)

Interaction with salmon sperm and pBR322 plasmid DNAs is being studied using gel electrophoresis.

Activity of the compounds against a number of cancer cell lines will be determined by using MTT reduction assay.

## GAIT VARIABLES IN WOMEN WITH KNEE OSTEOARTHRITIS: A PRELIMINARY STUDY

Nasim Foroughi, Richard Smith, Benedicte Vanwanseele

School of Exercise and Sport Science  
Faculty of Health Sciences, University of Sydney

Osteoarthritis is a chronic degeneration of articular cartilage. Initiation and progression of osteoarthritis (OA) depends on a variety of interactive factors: age, obesity, physical activity level, and mechanical loads on the joint. Researchers have shown the existence of many ethnic and racial differences in the prevalence of OA (Graeme, 2000; Dyrby, 1998). It is one of the most common musculo-skeletal disorders in Australia, affecting 60% of the elderly population over age 65 years. Women have a 1.5 times higher risk than men (Tsai, 1992). OA is an anabolic or reparative process that occurs because of an imbalance between the mechanical stresses on the joint and the ability of the joint to withstand those stresses (Radin and Burr, 1984). Although other pathophysiological factors would develop OA of the knee, mechanical factors play an important role in initiation and progression of OA.

During walking, forces acting on the leg produce an adduction moment that tends to adduct the knee into the varus position (Andriacchi, 1994). This moment determines how load is distributed across the knee and has a higher magnitude in knee OA compared to normal knee (Van Baar, 2000). The higher the adduction moment, the greater the load on the medial plateau relative to that of the lateral plateau. In addition, it has been shown that a high adduction moment causes higher bone mineral content (in the proximal tibia) under the medial plateau as compared to that under the lateral plateau (Hurwitz, 1998). Progressive decrease of muscle strength, poor flexibility (Shephard, 1998), increased joint stresses and quadriceps weakness, forced OA patients to use adaptive strategies that reduce the pain. Less knee angular velocity and increased loading rate in unaffected knee after heel strike are some of these adapted strategies used by OA knee.

This study compares the kinetics, kinematics and spatio temporal variables of an OA population with a matched height, weight and age control group. It is hypothesised that OA population has an increased knee adduction moment.

Our cohort is consisting of 15 community-dwelling women aged over 40 years with OA in at least one knee, according to the American College of Rheumatology criteria. The control group is consisting of 15 participants matched for height, weight and age. Gait and balance analysis, muscle activity (EMG), muscle strength, self-efficacy and quality of life will be assessed. To measure the gait variables, subjects will be asked to walk on a 10 metre walk way in their normal and fast walking speed for 5 times. The data will be analysed using Kintrak (6.2) software. Testing will take place at the Cumberland Campus, University of Sydney.

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#### **FITNESS TRAINING FOR CARDIORESPIRATORY DECONDITIONING AND PSYCHOSOCIAL FUNCTIONING AFTER TRAUMATIC BRAIN INJURY**

Leanne Hassett<sup>1,2</sup>, Anne Moseley<sup>2</sup>, Robyn Tate<sup>3</sup>, Alison Harmer<sup>2</sup>

Brain Injury Rehabilitation Unit, Liverpool Health Service<sup>1</sup>. School of Physiotherapy, Faculty of Health Sciences, University of Sydney<sup>2</sup>. Rehabilitation Studies Unit, Northern Clinical School (Medicine), University of Sydney<sup>3</sup>.

Traumatic brain injury (TBI) is the leading cause of long-term disability in children and young adults. Due to the usually young age at time of injury, people who have sustained a TBI will be expected to survive for many years. It is therefore important to look at ways of maintaining and improving their health, and minimising the development of preventable serious health conditions, throughout their life.

People with disabilities are significantly less physically active than the able-bodied population (Paluska and Schwenk 2000). Reason why people with disabilities from TBI may be less physically active are multifactorial and can include a range of physical, emotional and cognitive impairments such as weakness, depression and lack of drive. This sedentary lifestyle puts them at risk of developing serious health conditions seen in people who are physically inactive such as ischaemic heart disease and diabetes. It is therefore important to implement preventative health care by looking at strategies to increase physical activity.

We are currently carrying out a Cochrane systematic review to examine the effects of fitness training on cardiorespiratory deconditioning and psychosocial functioning after TBI. The objective of this review is to examine if fitness training can improve cardiorespiratory fitness, depression, motivation, community integration and function in people who have sustained a TBI, and are there any adverse effects? By attempting to answer these questions we aim to provide the highest level of evidence for service providers and people who have sustained a TBI to guide and potentially encourage participation in physical activity. By increasing physical activity, this could potentially prevent the development of serious health conditions seen in physically inactive people. The protocol for this review is in progress.

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### **THE OLDER PEOPLE AND LIVING PROJECT (OPAL): A PROACTIVE LOOK AT THE TRANSITION FROM WORK TO RETIREMENT AND A ROLE FOR HEALTH PROFESSIONALS**

Howe, C., Sitharthan, G., Matthews, L., Campbell, A.J.

School of Behavioural and Community Health Sciences  
Faculty of Health Sciences, University of Sydney

For many people, retirement involves a redefinition of who they are and how they fit into society. Results from an unpublished pilot study (Howe, 2003) on the cross generational and cross cultural attitudes of Australian workers suggested that the retirement experience differs between Australian born retirees compared to overseas born retirees. The study also highlighted that the thought processes around ageing must be redefined to include a more dynamic "living longer" model for health professionals, as opposed to the more negative connotations behind the term "ageing", and hence working with an ageing population (Andrews, 2000; Bytheway, 2000). Literature also indicates that although a large percentage of older workers are able to make the transition from work to retirement with relative ease, a small percentage of older workers will not (Nuttman-Shwartz, 2004). In Australia small percentages over time could amount to hundreds of thousands of people who experience difficulty with the transition from work to retirement. A more pro-active approach to living longer will need to be adopted by health professionals to accommodate for not only a population that is living longer, but to accommodate for the potential growing numbers of people who suffer from stress, depression, late onset PTSD and anxiety symptoms following retirement (Akhtar, 2004; Alpass, 2003; Bosse, 1987; Bozarth, 1981; Busuttill, 2004; Duberstein, 2004; Gething, 2003). The aims of the OPAL project are three-fold: To examine how retiring outside your country of origin effects your retirement experience; To determine whether negative experiences can be minimized through interventions,; and to find out what proactive approaches can be implemented by Health Professionals to minimise negative retirement experiences.. The proposed research will use a mixed methods approach, predominantly focusing on a quantitative questionnaire format, supplemented with a short answer format. This approach will utilise Internet Research Methodology (Mann & Stewart, 2000), whereby subjects will be self-selected voluntary research participants on the Internet and predominantly recruited through online community interest groups. The study is anticipated to begin data collection by November 2005.

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### **RECRUITMENT STRATEGIES USED IN “THE MARRIED MEN WHO HAVE SEX WITH MEN (M2M) STUDY”.**

Hudson, Jeff, Prestage, Garrett, and Weerakoon, Patricia

School of Biomedical Sciences, Faculty of Health Sciences, The University of Sydney

**Aims:** The M<sup>2</sup>M study aims to understand the social, sexual and demographical aspects of MMSM towards an understanding of this group, promote education initiatives, support and explore the risk environments. The project also seeks to investigate the sexual networks within the population and sexual fluidity within the context of sexual ambiguity and MMSM. This paper describes the recruitment and research methods used in this project. **Methods:** Descriptive methods of publicly available data on the internet were used to formulate proxy markers to indicate the locations of populations of MMSM. Using the search engine of highly popular “heterosexual” adult web site with a personal ads section for men, observations were made on profiles of men seeking men who choose to identify as gay, bisexual, bi-curious or straight and their marital status as married, attached, divorced, separated or open relationship. Postcodes were recorded to identify specific areas / suburbs in NSW as possible catchments areas. **Findings:** The Search yielded 730 with an age range from 18 – 77 years old with mean age being 38 years.

The 5 Most Frequent Postcodes were identified with the most frequent Postcode being Sydney CBD (2000) which may reflect the increasing trend of inner city dwelling.

The next top P/C frequencies were in the Western suburbs of Sydney, which tend to be more working class and family orientated suburbs with MMSM. **Discussion:** Careful planning is necessary when instigating specific recruitment methods and the use of proxy markers targeting key groups and areas is a valuable recruitment tool.

HIV/STD prevention programs for MSM may be hindered by the denial of MMSM who do not identify themselves as having sex with men but choose to identify as “bi-curious” or “straight” with preventive messages often eluding them.

Specific sexual health education and research of MMSM in the identified catchments areas may be warranted.

## **EXPLORING THE LOCATIONS WHERE MARRIED MEN HAVE SEX WITH MEN (MMSM) AND IDENTIFYING POSSIBLE HEALTH RISKS**

Hudson, Jeff, Prestage, Garrett, and Weerakoon, Patricia

School of Biomedical Sciences, Faculty of Health Sciences, The University of Sydney

**Aims:** The “Married Men who have Sex with Men (M<sup>2</sup>M) Study” aims to understand the social, sexual and demographic aspects of MMSM, such as to guide a better understanding of this group, optimize healthcare and inform health professionals and the community. The goal of this paper is to increase awareness of this behaviour among married men, discuss risk factors and understand how and where MMSM find sex. **Methods:** Using an ethnographic approach of naturalistic observation and personal experiences this paper describes the settings in which MMSM meet sexual contacts such as public places, sex clubs, saunas and backrooms often known SOPV. These locations are also frequented by men who identify as homosexual. **Findings:** SOPVs are sometimes the first point of contact for men who have sex with men (MSM). These venues need to be conducive to the prevention of HIV and STIs. As well as unprotected anal intercourse, other sex practices that occur in the context of group sex could be potential health risks for MSM including MMSM. These include the use of one condom by the insertive partner during anal intercourse with more than one receptive partner and the act of showering someone with semen from one or several men who ejaculate on the recipient. These practices have not been previously investigated so their prevalence and potential risk for HIV and STI transmission is undocumented. **Discussion:** It is important that MMSM are informed of their vulnerability to certain STIs and HIV when having sex with men particularly as the MMSM group does not always have the same level of access to health care information as do gay men. There is also the potential risk to their wives /female partners who are unaware of their spouse's sexual activities. It is also necessary for health professionals to be sensitised to the incidence of these practices to provide successful prevention strategies.

## **PECTORAL STRETCHING PROGRAM FOR WOMEN UNDERGOING RADIOTHERAPY FOR BREAST CANCER**

Lee TS<sup>1</sup>, Kilbreath SL<sup>1</sup>, Refshauge KM<sup>1</sup>, Pendlebury S<sup>2</sup>, Beith JM<sup>2</sup> and Lee MJ<sup>1</sup>

School of Physiotherapy, University of Sydney<sup>1</sup>  
Sydney Cancer Centre, Royal Prince Alfred Hospital<sup>2</sup>

**Introduction:** A common treatment for breast cancer is surgery followed by radiotherapy to the breast. Upper quadrant morbidity has been reported in some women who receive radiotherapy to the breast or chest wall only<sup>1-3</sup>. The aim of this study is to investigate whether a stretching program is effective for reducing upper limb impairments in patients undergoing radiotherapy for breast cancer. **Methods:** Sixty-four women who were scheduled for radiotherapy following breast cancer surgery were recruited and randomised to a stretch or control group. Participants in both groups saw the physiotherapist on a weekly basis for approximately 6 weeks. The control group received no exercise advice. The stretch group received instruction on low-load, prolonged pectoral stretches, which were to be performed daily and checked at weekly visits. Shoulder range, strength, arm circumference and quality of life measurements were taken prior to, at completion, and at 7 months following the completion of radiotherapy. **Results:** The control and stretch groups performed similarly in all variables measured. Both groups attained full range by the completion of radiotherapy and maintained that range to the 7 month follow-up period. Breast symptoms increased for both groups during radiotherapy, reduction of range or strength. Presence of lymphoedema was low for both groups. Quality of life decreased significantly for the cohort during the follow-up period. **Conclusion:** The pectoral stretching program did not appear to influence the outcomes measured. Both control and stretch groups performed similarly in all variables measured. Radiotherapy to the breast did not appear to cause upper quadrant morbidity reported in other studies. Objective measurements of range may not correlate with some of the local symptoms reported by women during radiotherapy.

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### **THE EFFECT OF COMBAT RELATED POST TRAUMATIC STRESS DISORDER (PTSD) ON SEXUAL FUNCTIONING AND INTIMACY.**

Richard Lewandowski, Patricia Weerakoon

School of Biomedical Sciences, Faculty of Health Sciences, The University of Sydney

**Aim:** The aim of the presentation is to demonstrate the effect combat related PTSD on sexual functioning and intimacy and in terms of two case studies and present a plan for further research in the area. **Methods:** The two case studies reported were seen as part of the researchers employment. These two exemplify the factors contributing to issues relating to intimacy and sexual functioning. They will be contrasted to demonstrate the differences in impact on relationship between recent and historical trauma. **Results:** The case studies identify difficulties faced by men with combat related PTSD. The first demonstrates the issues faced over a 30-year period of a Vietnam Veteran, whereas the second of a veteran from a more recent engagement, shows the immediate impact of trauma on sexuality, intimacy and relationships.

**Discussion:** Research indicates that PTSD associated with road trauma, sexual assault and assault results in difficulties with intimacy and sexual functioning (De Silva, 1999, Elmone et al, 1996). Whilst the evidence for combat related PTSD is very limited it is postulated that there is a link between PTSD (Combat) and sexual difficulties and intimacy (Soloman et al., 1995; Riggs et al., 1998; Garte, 1989). A plan for further research in this area using a combined quantitative and qualitative methodology will be presented and the long term impact and possible treatment options available to practitioners discussed.

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### **CLINICAL TRIAL OF JOINT MOBILISATION AFTER ANKLE FRACTURE**

Chung-Wei Christine Lin, Dr Anne Moseley and Prof Kathryn Refshauge

School of Physiotherapy, Faculty of Health Sciences, University of Sydney

**Background and aim :** Ankle fractures are common and can result in limitations in activities and reduced participation. Currently there is a lack of evidence to support the use of physiotherapy joint mobilisation after ankle fracture. The aim of this trial is to determine if adding joint mobilisation to an exercise program is effective and cost-effective in preventing activity limitation and reduced participation after ankle fracture.

**Methods:** Subjects with an ankle fracture are recruited from 3 large teaching hospitals in Sydney following cast removal. Consecutively numbered, sealed, opaque envelopes are used to randomly allocate subjects into exercise only (control) and joint mobilisation plus exercise (treatment) groups. All subjects participate in an individualised home exercise program. Subjects in the treatment group also receive twice-weekly joint mobilisation from the physiotherapist for 4 weeks. A blinded assessor will measure outcomes at baseline and 1, 3 and 6 months. The primary outcomes are the Lower Extremity Functional Scale and Assessment of Quality of Life. The secondary outcome measures include functional tests, pain and ankle range

of motion. Physiotherapy and the subjects' out-of-pocket costs are collected monthly up to 6 months from entry to trial. A power analysis has been conducted and 90 subjects (45 in each group) are needed to detect clinically worthwhile effects. Results: This trial received ethical clearance and funding in mid 2004 and recruitment commenced in November 2004. To the end of September 2005, 45 subjects have been recruited and 24 have finished the 6-month (final) follow-up. Data acquisition is expected to finish by January 2007.

Conclusions: Results of this trial will provide an evidence-based approach in the use of joint mobilisation for preventing activity limitations and reduced participation in patients after ankle fracture.

Acknowledgements: This trial is funded by the MAA of NSW.

## **MALE NON-GENITAL RESPONSES IN SEXUAL AROUSAL: THE FUTURE OF ASSESSMENT OF MALE SEXUAL FUNCTION?**

Jiao CS; Knight P, Weerakoon P, Turman B

School of Biomedical Sciences, Faculty of Health Sciences, The University of Sydney

Aim: The aim of the study is to study upper limb vibrotactile threshold and grip strength changes in men before and after sexual arousal. The long term goal is to establish simple assessment criteria to determine the contribution of the central nervous to the aetiology of cases of Erectile Dysfunction (ED). Methods: Vibrotactile thresholds of the index finger, and grip strengths of both hands were measured before and after audiovisual (video) sexual stimulation in men without ED to establish the normal response to sexual arousal. An erotic video was used to achieve arousal. A questionnaire was used to assess the level of arousal. Control experiments were conducted using a non-erotic video. These studies are being repeated in men with a history of ED. Results: Vibrotactile thresholds of the index finger decreased during arousal in most subjects. Similarly, the grip strengths for both hands were significantly decreased. These results suggest that sexual arousal results in an increase in sensitivity and decrease in motor strength in the upper limbs in men without ED. The studies in men with ED have not been completed. Discussion: These studies show that sexual arousal can result in clinically measurable non-genital effects. The changes are likely to be related to the effects of arousal on central nervous system function. Studies on subjects experiencing ED will demonstrate the contribution of central function to the aetiology of the condition, and may contribute to the development of simple clinical tests to differentiate between types of ED.

## **THE WELLBEING OF FAMILIES WHO CARE FOR A CHILD WITH DISABILITIES: PREVENTING EXCLUSION**

Carmen Jarrett

Australian Family and Disability Studies Research Collaboration  
School of Occupation and Leisure Sciences, Faculty of Health Sciences, University of Sydney

It is estimated that about 3.7% of children aged 0 – 14, at least 144 000 children, have a severe disability. Caring for a child with disabilities poses extra challenges to parents on top of the usual struggles and joys of parenting. While families who have a child with disabilities may differ in important ways from families with typically developing children, such as in recreation and education opportunities for both children and parents, they also share the challenge common to all families of developing a meaningful and sustainable routine of family life.

Ecocultural theory takes the insight that routines are important to family wellbeing, and then places family routines into their ecological and cultural context. Ecocultural theory defines the activities by which families develop their routines within their unique constellation of constraints, resources, values and beliefs as "accommodation". Where families have a child with disabilities, they make particular accommodations because of their child's disability.

The "social model" of disability defines disability as the exclusionary and oppressive social practices which restrict access by people with disabilities to socially valued activities and institutions. From this point of view, the disadvantaging experiences of families that are the result of disability are potentially preventable.

My research will examine the extent to which the social model of disability is applicable to families who care for a child with disabilities, and the extent to which families protect their

wellbeing by resisting unfair or discriminatory treatment. This will enrich understanding of the process of "accommodation". Up to 45 families will be interviewed up to 5 times, so that the experiences they report do not represent only a single slice of time. Families with children ranging in age from infancy to young adulthood will be interviewed to ensure that family experiences across the developmental range are represented. Families from rural and regional areas will be included.

### **RANDOMISED CONTROLLED TRIAL OF A HOME-BASED EXERCISE PROGRAM FOR ELDERLY CAREGIVERS AND CARE RECIPIENTS**

Jacobs, N. I. and Fiatarone Singh, M. A.

School of Exercise and Sport Science, Faculty of Health Sciences, University of Sydney.

Rationale: Providing care for a dependent person is a physically and psychologically demanding task that may substantially impact on caregiver health, especially in elderly caregivers. In 2003, approximately 2.5 million Australians (or 16% of those aged 15 years and above) provided informal care to elderly and/ or disabled people living in the community (ABS 2003 Survey of Disability, Ageing and Carers). Negative health effects associated with care-giving include fatigue, depression and stress, immune dysfunction, neglected preventive health care practices, and increased mortality. Elderly caregivers face the additional burden of age-related declines in physical and mental function. Background: Most intervention studies targeting caregiver burden have used psychosocial interventions (e.g., counselling, education, or social support), which address psychological symptoms, but neglect physical and functional deficits. By contrast, exercise interventions have the potential to treat all these areas simultaneously. No previous studies have simultaneously addressed impairments in both caregivers and the person cared-for as a means to improve well-being and relieve burden. Aim: The proposed study will investigate changes in mental and physical health following a homebased, physiologically robust, exercise intervention for the caregiver and the person cared-for to participate in together. The clinical cohort will be either Alzheimer's disease or Parkinson's disease. Method: The study will be a 6-month, randomised controlled trial. Caregiver/ cared-for person adult pairs will be randomised together to either the experimental intervention or a placebo (general health promotion) control condition. The exercise will be directed at the most pressing health-related issues present for both cohorts, and will include progressive resistance, balance, and aerobic activities tailored to individuals' capacities. Outcomes: The primary outcomes will be the changes in caregiver mental and physical health, cognitive and physical function in both caregiver and the cared-for person. Secondary measures will include level of disability and exercise compliance, and biochemical markers of immune function, stress and inflammation.

### **PREDICTING FITNESS TO DRIVE IN OLDER PEOPLE WITH PHYSICAL AND/OR COGNITIVE IMPAIRMENTS**

Lynnette Kay<sup>1</sup>, Lindy Clemson<sup>1</sup>, Anita Bundy<sup>1</sup>

School of Occupation and Leisure Sciences<sup>1</sup>, Faculty of Health Sciences, The University of Sydney

Driving is essential for older people for the maintenance of independence in activities of daily living, social integration and mental health. The ageing process results in reduction in the skills required for safe driving, but chronological age is not an accurate predictor of these skills or driving ability. The determination of an older person's fitness to drive has to balance individual needs and community expectations of a safe driving environment. Neuropsychological tests, vision tests and driving simulators have failed to consistently predict on-road driving performance<sup>1</sup>. Occupational therapists who conduct driving assessments use the Visual Slide Recognition Test (VSRT) to assess visual and cognitive function prior to completing an on-road assessment. Clinically this test yields useful information but to date the test's validity and reliability have not been empirically examined.

The purpose of this study is to examine the internal reliability and construct validity of the test to determine whether it accurately predicts driving performance in older drivers. Data from 284 drivers, 65 years and older with a variety of diagnoses from two major driving rehabilitation centres in Sydney were analysed using Rasch modeling. Rasch's model converts ordinal data

into interval data reflecting difficulty of items and people along an ordered continuum. The VSRT has high internal reliability and good evidence for construct validity. Coupled with a measure of insight there is a clear cut-off point below which no older person passes the on-road assessment. These results are consistent with a recently documented model for enabling driving safety<sup>2</sup>. Using this test and a measure of insight it is possible to predict fitness to drive, saving time and money and increasing road safety for older drivers and the public.

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### **COMPARISON OF VIBRATION TO OTHER PHYSIOTHERAPY INTERVENTIONS IN SUBJECTS WITH CYSTIC FIBROSIS**

McCarren B<sup>1</sup> and Alison JA<sup>1</sup>

School of Physiotherapy, Faculty of Health Sciences, University of Sydney

The physiological effects of vibration on expiratory flow rates have not been evaluated or compared with other interventions. The main aim of the study was to compare the respiratory flow rates and frequency of airflow oscillation of vibration to those of Acapella, Flutter, positive expiratory pressure (PEP) and percussion. Methods: 18 stable cystic fibrosis subjects were recruited. Each intervention was performed in random order with the same physiotherapist applying all the interventions. The respiratory flow rates were measured with a pneumotachograph. Results: The mean PEFR during vibration was 1.4 times faster than Flutter ( $p = 0.002$ ), 1.9 times faster than percussion ( $p < 0.001$ ), 2.7 times faster than Acapella ( $p < 0.001$ ) and 3.6 times faster than PEP ( $p < 0.001$ ). The peak expiratory flow rate to peak inspiratory flow rate ratio (PEFR/PIFR) of vibration was 1.5 and Flutter was 1.2. The mean (SD) of the oscillation of the airflow of Acapella, Flutter, vibration and percussion were 13.5 (1.7), 11.3(1.5), 8.4(0.4), 7.3(0.3) Hz respectively. Conclusions: If secretion clearance is aided by increased expiratory flow rates vibration and Flutter may be the physiotherapy intervention of choice. However if secretion clearance is aided by oscillation of airflow then Flutter and Acapella may be the physiotherapy intervention of choice. The data from this study provides some evidence to enable physiotherapists to make inferences about the possible effects of physiotherapy interventions on secretion clearance based on theoretical rationale.

### **THE EFFECT OF MOTOR CONTROL EXERCISE VERSUS PLACEBO IN PATIENTS WITH CHRONIC LOW BACK PAIN**

Chris G Maher<sup>1\*</sup>, Jane Latimer<sup>1\*</sup>, Paul W Hodges<sup>2\*</sup>, Kathryn M Refshauge<sup>1\*</sup>, G. Lorimer Moseley<sup>3\*</sup>, Robert D Herbert<sup>1\*</sup>, Leonardo O P Costa<sup>1\*§</sup>, James McAuley<sup>\*</sup>

<sup>1</sup>Back Pain Research Group, Faculty of Health Sciences, School of Physiotherapy, The University of Sydney; <sup>2</sup>Division of Physiotherapy, The University of Queensland  
<sup>3</sup>Department of Human Anatomy & Genetics, Oxford University

Background: While one in ten Australians suffer from chronic low back pain this condition remains extremely difficult to treat. Many contemporary treatments are of unknown value. One potentially useful therapy is the use of motor control exercise. This therapy has a biologically plausible effect, is readily available in primary care and it is of modest cost. However, to date, the efficacy of motor control exercise has not been established. Methods: This research compares the effects of motor control exercise versus placebo in the treatment of chronic non-specific low back pain. One hundred and fifty-four participants will be randomly allocated to receive an 8-week program of motor control exercise or placebo (detuned short wave and detuned ultrasound). Measures of outcomes will be obtained at follow-up appointments at 2, 6 and 12 months after randomisation. The primary outcomes are: pain, global perceived effect and patient-generated measure of disability at 2 months and recurrence at 12 months. This trial will be the first placebo-controlled trial of motor control exercise. The results will inform best practice for treating chronic low back pain and prevent its recurrence.

## **THERMAL STRESS AND STRAIN IN ELITE AND COMMUNITY LEVEL TENNIS PLAYERS**

Morante SM, Brotherhood JR and Raymond J.

School of Exercise and Sport Science, Faculty of Health Sciences, University of Sydney.

Tennis is played throughout the world, often in hot conditions, by players with wide ranging physiological characteristics. There is widespread community concern in Australia about the risk of heat stress in sport, particularly tennis. Anecdotal evidence suggests that dizziness, nausea, vomiting and exhaustion occur during tennis play in hot, humid weather; however the actual incidence and the environmental conditions that cause these symptoms of heat stress are unknown. In the future, heat stress is likely to be an increasing problem for sport due to climate change and global warming. Therefore it is important to establish objective, evidence-based guidelines which determine conditions that are unsuitable for play. Currently, no objective information about players' physiological responses exists on which to formulate guidelines. Therefore the aim of this study is to develop a evidence-based recommendations for tennis participation to minimize the potential for heat illness. In the field, over the course of twelve months (4 seasons), the thermal environment, and players' physiological responses will be measured during singles tennis match play. Convective and radiative heat exchanges, and the evaporative capacity of the environment, will be estimated for analysis of heat stress from the measurements of air temperature, humidity, air movement, radiant temperature and players' clothing. The physiological measurements will be body core (rectal) temperature, skin temperatures, sweat loss and heart rate. Since January 2005, 34 assessments have been performed throughout each of the seasons. The results will be used to develop equations for the rational analysis of heat stress and strain in competition tennis for a wide range of environmental conditions. The data will be used to develop models that will predict environmental conditions that are potentially hazardous to player health and safety. In addition, evidence-based advice will be developed for women regarding tennis play in early pregnancy when the foetus is most vulnerable to high body temperature.

## **PREVENTION OF CHALLENGING BEHAVIOUR: TRAINING STAFF WHO WORK WITH ADULTS WITH DEVELOPMENTAL DISABILITY AND CHALLENGING BEHAVIOUR IN RESIDENTIAL SETTINGS**

Andy Smidt<sup>1</sup>, Susan Balandin<sup>1</sup>, Jeff Sigafoos<sup>2</sup>, Vicki Reed<sup>3</sup>,

Faculty of Health Sciences, University of Sydney<sup>1</sup>, University of Tasmania<sup>2</sup>, James Madison University, Virginia<sup>3</sup>

Individuals with developmental disability often present with severe behaviour problems, such as aggression, self-injury, and property destruction ((Emerson, 2001). Indeed Sigafoos, Arthur, and O'Reilly (2003) suggested that up to 40% of people with developmental disability may have one or more forms of such "challenging behaviour". Given the high incidence of, and risk for injury and damage from challenging behaviour among people with developmental disability, it is important to understand why these behaviours occur, and how to best support people with challenging behaviours. Challenging behaviour often serves a communicative function. Consequently, residential staff working in developmental disability services need to understand the communicative function of challenging behaviours and at the same time prevent these behaviours occurring.

Eighteen members of staff working in 3 residential services for adults with developmental disabilities participated in a 4 week communication training program. The program focused on staff attitudes to and beliefs about challenging behaviour, communicative interactions between staff and residents, and working as a team. The impact of the training on staff use of augmentative and alternative communication, praise, and use of inappropriate language was evaluated in a multiple-baseline design. Changes in challenging behaviours among the residents were also evaluated

Results indicated that a staff's use of AAC and praise increased, and inappropriate language decreased, there was some immediate decrease in residents' levels of challenging behaviour; however, these results were not sustained over 12 months.

Effective staff training can reduce and prevent clients' challenging behaviour and has an impact on the quality of life for clients. It can also reduce staff stress and burnout and decrease staff-resident ratios. This is financially beneficial to service providers.

The results of the present study indicated that training staff to be involved in the assessment and decision making about communication and challenging behaviour resulted in improved communication and some decrease in challenging behaviour.

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## **STRIVING FOR EXCELLENCE – THE COPTIC ORTHODOX COMMUNITY IN NSW**

Evelyne Tadros<sup>1</sup>, Ian Hughes<sup>1</sup>

School of Behavioural and Community Health Science, Faculty of Health Sciences, University of Sydney<sup>1</sup>

The field of interest is community development, in the context of an immigrant religious community. The study has led to a historical review of the Coptic Orthodox community overseas and in Australia. The community achievements and planning processes previously used are being translated into statements describing resources and needs within the Coptic community and provide for more information on self-directed change in an immigrant community. Action Research is the underlying research framework and the research methods used included the completion of a 108 questionnaires by community members, semi-structured interviews, participant observations and information obtained from key informants. Careful study and analysis of the data collected will ultimately contribute to relevant theory on community consultation, needs-based planning and action research. The research questions include identifying achievements of the Coptic Orthodox Community in New South Wales; determining processes and strategies for change utilised by the Coptic Community in NSW and finally assisting the Coptic Orthodox Community in NSW to develop for themselves effective ways to shape the future. Ultimately my role is to facilitate the Coptic Orthodox community in their effort to improve services to its community members. As this is a work in progress the work undertaken to date includes: the collection of data which has all been imported into NVivo, manual coding, identification of key themes and exploration of the role of participant researcher.

## **SUCCESS INDICATORS OF EFFECTIVE PARENTING INTERVENTIONS FOR AT-RISK PARENTS AND THEIR CHILDREN**

Catherine Wade<sup>1</sup>, Gwynnyth Llewellyn<sup>1</sup> and Jan Matthews<sup>2</sup>

Department of Occupation and Leisure Science, Faculty of Health Sciences, University of Sydney and Victorian Parenting Centre<sup>2</sup>.

This project will investigate success indicators of effective parenting programs for at-risk parents. Specifically, the relationship between parent, child, family and environmental variables and intervention outcomes in at-risk families headed by parents with intellectual disability will be examined.

A range of risk and vulnerability variables which have been identified as having an impact on parenting in the wider population, are common in families headed by parents with intellectual disability. Parent health, difficult child behaviour, isolation and low socio-economic status have been linked with parenting that is considered poor by general community standards. High rates of risk and vulnerability variables may explain in part why the children of parents with intellectual disability are over-represented in the child protection system by up to 50% more than would be expected, given their prevalence in the general population.

There is evidence that specifically tailored parenting interventions are effective with these families. However, such interventions can be costly, time consuming, have moderate to high rates of drop-out, and not all parents benefit from the interventions to the same degree. Little is known about how mediating variables influence learning and skill development in families where a parent has an intellectual disability. This study will investigate the relationship between family and contextual variables and intervention outcomes of a series of interventions designed specifically

for parents with intellectual disability, using a large sample of Australian parents recruited through the Healthy Start initiative. Correlations will be used to identify potential mediators of intervention outcome and structured equation modeling will be used to identify possible pathways between risk and vulnerability variables and intervention outcome. Findings will provide evidence that allows practitioners to target interventions to better meet the needs of individual families. The potential impact of such evidence is: to ensure high rates of intervention success for families; to reduce the risk of drop-out from interventions; and to reduce the high rates of child removal from the family.

## **OTHER 'PREVENTION' RELATED RESEARCH PROJECTS IN THE FACULTY OF HEALTH SCIENCES**

### **GERIATRIC MEDICINE**

Maria Fiatarone Singh

School of Exercise and Sport Science, Faculty of Health Sciences, The University of Sydney.

Maria Fiatarone Singh is a geriatrician whose research, clinical, and teaching career has focused on the integration of geriatric medicine, exercise physiology, and nutrition as a means to promote and improve quality of life for the aged. The translation of Prof Fiatarone Singh's work into clinical practice, international policy and community program implementation is central to her research and career goals.

### **PREVENTION OF ADVERSE OUTCOMES FOR COMPENSABLE PATIENTS IN AUSTRALIA.**

Julia Hush<sup>1</sup>, Rob Herbert<sup>1</sup>, Jane Latimer<sup>1</sup>, Jennifer Hewitt<sup>2</sup>, Melody Martin<sup>2</sup>

School of Physiotherapy, Faculty of Health Sciences<sup>1</sup>, The University of Sydney; Rehab One Physiotherapy, Sydney<sup>2</sup>

This is the first study in Australia to analyse predictors of rehabilitation outcomes in compensable patients with persisting musculoskeletal pain. The study found that prognostic factors include levels of pain and disability, non-English speaking background, area of pain and duration of passive treatment. This information can be used by health care practitioners to identify patients at risk of poor prognosis, and could form the basis of intervention to prevent adverse rehabilitation outcomes.

### **OPTIMISING ACCESS FOR WOMEN WITH DISABILITIES TO MAMMOGRAPHY SCREENING, 2005-2008**

Gwynneth Llewellyn<sup>1</sup>; Susan Balandin<sup>2</sup>, Ann Poulos<sup>3</sup>, Louella McCarthy<sup>1</sup>

School of Occupation & Leisure Sciences<sup>1</sup>; School of Communication Sciences and Disorders<sup>2</sup>; School of Medical Radiation Sciences<sup>3</sup>

Screening programs, such as the national breast screening program, are an important dimension of preventative health-care. This three-year study brings an innovative multidisciplinary perspective to the challenge of overcoming the barriers to mammography screening experienced by Australian women with disabilities. Blending the methodological insights from the health and social sciences with oral history, the study aims to determine the nature of the barriers for women with disabilities participating in mammography screening and to design strategies for overcoming them.

BreastScreen NSW has endorsed this research project and is cooperating with the researchers to ensure the service is widely accessible.

## **PHYSICAL ACTIVITY AND RISK FACTORS FOR CARDIOVASCULAR DISEASE IN PEOPLE WITH SPINAL CORD INJURY**

Jacqui Raymond

School of Exercise and Sport Science, Faculty of Health Sciences<sup>1</sup>, The University of Sydney

Previous research suggests a strong relationship between neurological level of lesion following spinal cord injury (SCI) and cardiovascular disease (CVD) risk factors, however it is unknown what role physical activity has in this relationship. This topic is important as physical activity can be modified and may therefore contribute to CVD prevention. A study is currently being conducted investigating the role of physical activity on CVD risk factors, with preliminary data suggesting that increasing physical activity level may improve blood lipid profiles in people with SCI and therefore have a role in prevention of CVD in this population.

## **TRAINING IN WORK DISABILITY PREVENTION: THE CANADIAN WORK DISABILITY PREVENTION CIHR STRATEGIC TRAINING PROGRAM**

Eva Schonstein

School of Physiotherapy, Faculty of Health Sciences, The University of Sydney

There is a paucity of researchers in the area of work disability prevention (WDP) (Loisel et al 2005). An advanced training program, funded by, was developed by 24 mentors affiliated with nine different universities. The course content and educational methods have been developed to promote the acquisition of five specific key competencies that appeared to be of primary importance to the process of becoming a WDP researcher. These competencies are the following: 1. To analyze a research problem from a transdisciplinary and contextual perspective in order to maximize research relevance and impact; 2. To integrate relevant ethical and legal issues into the design and implementation of WDP research; 3. To effectively communicate information on a specific research project or methods to all other researchers involved in disciplines in the WDP field; 4. To incorporate the elements needed to develop a research approach that factors in the participation of relevant stakeholders; 5. To participate in activities promoting knowledge exchange such as scientific presentations, presentations to stakeholders or publications. Since its implementation, the program received two successive cohorts of 10 students. They were registered in 13 universities (one of which is the School of Physiotherapy in the University of Sydney) in five countries and trained in nine different disciplines. Appropriate WDP research may save major societal costs attributable to prolonged work disability. The proposed training program has significantly improved my understanding of the issues associated with WDP and increased my confidence in performing research in this area.

Loisel, P., Cote, P., Durand, M.J., Franche, R.L., Sullivan, M.J.L., (2005) Training the Next Generation of Researchers in Work Disability Prevention: The Canadian Work Disability Prevention CIHR Strategic Training Program. *Journal of Occupational Rehabilitation*, 15(3), 273-284.

## **MOBILITY BIOMECHANICS**

Richard Smith

School of Exercise and Sport Science, Faculty of Health Sciences, The University of Sydney.

Richard Smith applies the principles and methods of biomechanics to the maintenance of and excellence in mobility. Mobility is a precursor to physical activity and appropriate physical activity is central to the maintenance of good health and the prevention of disease and injury. For the impaired person this means finding the combination of the least painful, the lowest energy cost, and most stable means of relearning a physical task without injury; for the able-bodied, skilful activity without injury; for the elite sports person, attaining maximal performance. Richard works in these areas with spinal cord injured, children, the elderly, Olympic athletes and other special populations.