Institute for Health and Rehabilitation Research

Annual Research Seminar

Keynote Speaker:
Prof. Bruce Armstrong, University of Sydney
The relationship between mobile phone use and brain tumours
11.30 am – 12.30 pm

8th November 2011
9.00 am - 4.30 pm
ND 46/209
## Program 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00</td>
<td>Anne-Marie Hill</td>
<td>Incidence and risk factors for falls in the 6 months following hospital discharge</td>
</tr>
<tr>
<td>9.30</td>
<td>Beth Hands</td>
<td>Gender difference in motor abilities: A concern for movement assessment in children and adolescents</td>
</tr>
<tr>
<td>9.45</td>
<td>Prue Butler</td>
<td>Are clinical manifestations of disrupted cortical maps evident in patients with chronic, mid-portion Achilles tendinopathy? An observational study</td>
</tr>
<tr>
<td>10.00</td>
<td>Darren Falconer</td>
<td>Student nurses use of online discussion forums in an undergraduate nursing research unit</td>
</tr>
<tr>
<td>10.15</td>
<td>Troy Fuller</td>
<td>Employee health in the 21st century: An investigation of exercise incentives in four Western Australian organisations</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Morning Tea - 10.30pm - 11.00pm (coffee and tea provided)</strong></td>
</tr>
<tr>
<td>11.00</td>
<td>Courtenay Holgate</td>
<td>How do Parents Score: Exploring maternal religiosity and its relationship to sexual health education in the home.</td>
</tr>
<tr>
<td>11.15</td>
<td>Max Bulsara</td>
<td>Improving Rural Cancer Outcomes (IRCO) Project</td>
</tr>
<tr>
<td>11.30</td>
<td>Bruce Armstrong</td>
<td>Mobile phone use and brain tumours: Is there a risk? Should we be worried?</td>
</tr>
<tr>
<td>1.15</td>
<td>Joanne Connaughton &amp; Susan Edgar</td>
<td>Evidencing reflective practice with e-portfolios</td>
</tr>
<tr>
<td>1.45</td>
<td>Jacqui Francis-Coad</td>
<td>Finding ways to facilitate student learning in practical laboratories</td>
</tr>
<tr>
<td>2.00</td>
<td>Cat Pardoe</td>
<td>Are there associations between physical activity, fatigue, sleep quality and pain in people with mental illness? A longitudinal pilot study</td>
</tr>
<tr>
<td>2.15</td>
<td>Laura Gotti</td>
<td>Can regular use of the Cough Assist® device maintain lung function in children and adolescents with neuromuscular disease? A pilot study</td>
</tr>
<tr>
<td>2.30</td>
<td>Shane Patman</td>
<td>Exploring the capacity to ambulate following a period of prolonged mechanical ventilation</td>
</tr>
<tr>
<td>3.15</td>
<td>Marco Barciela de Assis</td>
<td>Comparison of land and water based exercise activity on acute blood glucose levels in type 2 diabetes patients</td>
</tr>
<tr>
<td>3.30</td>
<td>Tegan Grace</td>
<td>Perinatal Influences on Longitudinal Motor Development</td>
</tr>
<tr>
<td>3.45</td>
<td>Caroline Bulsara &amp; Jenny Lawrence</td>
<td>Launching the Brightwater Centre: Embedding research within a non-government organisation.</td>
</tr>
<tr>
<td>4.00</td>
<td>Luke Hopper</td>
<td>Floor surfaces and injury risk; Changes in dancer landing mechanics on varied dance surfaces</td>
</tr>
<tr>
<td>4.15</td>
<td>Cecily Cropley</td>
<td>The theoretical orientations embraced by counsellors and the development of their therapeutic practices</td>
</tr>
</tbody>
</table>
Presenter: Anne-Marie Hill

Title: Incidence and risk factors for falls in the 6 months following hospital discharge.

Abstract:
Background
Falls after hospital discharge are a substantial problem. This study aimed to determine i) risk factors for post discharge falls; and ii) the effect of inpatient falls prevention education on rates of falls after discharge.

Methods
Participants (n=343) were a prospective cohort nested within a randomized controlled trial (n=1206) of falls prevention patient education in hospital compared to usual care. Participants were followed up for 6 months after discharge and falls recorded via a falls diary and monthly telephone calls. Potential falls risk factors were assessed at point of discharge and at 6 months post discharge using a telephone survey.

Results
There were 276 falls among 138 (40.2%) participants in the 6 months following discharge (4.52 / 1000 person days) of which 150 were injurious falls (2.46 / 1000 person days). Pairwise comparisons found no significant differences between groups in rates of falls after adjustment for confounding variables. Independent risk factors for all falls outcomes (falls; injurious falls; risk of sustaining a fall) were male gender, falls in the 6 months prior to hospital admission, fall during hospital admission, depressed mood at discharge, using a walking aid at discharge and receiving assistance with activities of daily living in the 6 months following discharge.

Conclusion
Older patients are at increased risk of falls and falls injuries following discharge. Education which effectively reduced inpatient falls appears to have no ongoing protective effect after discharge. Independent risk factors for falls in this population differ from both hospital and general community settings.
Title: Gender difference in motor abilities: A concern for movement assessment in children and adolescents.

Abstract:
Most test batteries used to identify children and adolescents with movement problems such as developmental coordination disorder (DCD) or motor learning difficulties (MLD) underplay gender differences. These batteries implicitly assume a higher order construct with a composite score as an indicator of overall motor performance. In this study, we investigated the hierarchical structure of the McCarron Assessment of Neuromuscular Development (MAND) (McCarron, 1982) to ascertain whether the hypothesised underlying structure is consistent across age and gender.

The MAND battery has ten items measuring a range of motor skills. Motor scores were obtained from a sample of 986 participants (boys = 501, girls = 485) at ages 10, 14 and 17 years from the longitudinal Western Australian Pregnancy Cohort (Raine) Study. Principal components analysis with Promax rotation was used to analyse the data separately for males and females at each age. The underlying factors changed with age and gender with the exception of one first order factor which was consistent across all ages and gender (beads in the box, beads on the rod and nut and bolt). For the boys one second order factor emerged independent of age. A more complex structure underlies the broader range of abilities among the younger females. At 10 years, five first order factors converged to one third order factor, and at 14 years four first order factors converged to one third order factor. At 17 years, the females had a similar factor structure to the males with three first order factors converging at the second order.

The first order factors were not consistent with the underlying four factor structure, or the fine and gross motor sub scales proposed by McCarron (1997). The second order factor for the boys and the 17 year old girls is consistent with a general motor ability construct thereby supporting the use of an overall composite score such as the NDI. However, we can’t assume the same test items will represent the same motor abilities across age and gender.

There is a need for further debate and research into underlying motor abilities and how they might change with age and gender. This is necessary in order to better understand and construct tests that can accommodate gender difference and developmental change.
Title: Are clinical manifestations of disrupted cortical maps evident in patients with chronic, mid-portion Achilles tendinopathy? An observational study

Abstract:
Background
Chronic mid-portion Achilles tendinopathy (AT) is a challenging condition to manage as the mechanisms of pain are not well understood. We know reorganisation of cortically held body maps are related to pain and measurable perceptual changes in several chronic pain conditions. No measures of perceptual function in people with chronic AT have been reported. Investigating whether evidence of altered cortical representations exists in people with chronic AT would help us to more fully understand the mechanisms of pain.

Objective
To investigate whether evidence of perceptual abnormalities exist in patients with chronic mid-portion AT.

Methods
An observational, within-subjects comparison was conducted with 13 people with chronic mid-portion AT. Tactile acuity over the Achilles tendon was tested using two-point discrimination (TPD). The ability to mentally simulate movement was tested using a laterality recognition (LR) task. The primary outcome measures were 1) TPD threshold and 2) reaction time (RT) and accuracy in the laterality recognition test. Severity of AT and the participants’ level of kinesiophobia were measured with the Victorian Institute of Sports Achilles Assessment (VISA-A) and the Tampa Scale respectively. The VISA-A and Tampa scores were secondary outcome measures.

Results
Two point discrimination thresholds were higher on the painful side when compared to the non-painful side. TPD threshold for the painful side [mean (95% CI)] was 44.82mm (38.68mm-50.96mm) and for the non-painful side, 33.82mm (30.04mm-37.60mm). No difference was found for RT or accuracy in identification of the painful side in the LR task.

Conclusion
Tactile acuity is impaired on the painful side in people with chronic AT, which is suggestive of reorganisation of cortically held body maps.
Presenter: Darren Falconer

Title: Student Nurses Use of Online Discussion Forums in an Undergraduate Nursing Research Unit

Abstract:

Purpose
Over recent years, technological growth has had a profound impact on teaching and learning, with a vast number of online resources, activities and events becoming readily available to students. With the exponential growth in online instruction and the increased adoption of information and communication technologies by higher education institutions, learning resources can now be delivered to a number of geographically and demographically diverse populations (Salmon 2004). With this in mind, Mazzolini and Maddison (2007) argue that considerable emphasis has been placed on determining how students use these technologies. It is suggested that communication through the internet has dramatically changed the ways that lecturers and students interact. The face of education is undeniably shifting for both the teacher and learner, with the educational focus now emphasising the impact of information technology on human learning (Young & Paterson 2007). Recently, the development of online learning environments has seen the introduction and on-going use of student discussion forums. The aim of this study is to determine how a cohort of undergraduate student nurses use an online discussion forum in a nursing research unit.

Methods
The study used a mixed method design to examine the research questions. The research design for this study employed a descriptive non-experimental design utilising an adapted survey (Student Nurses Online Perceptions of Discussions – SNOPOD). This consisting of qualitative data and some descriptive demographic data through a semi-structured questionnaire. Thematic content analysis of the online discussion forum postings was also undertaken. Participants were obtained for this study using convenience sampling.

Results
The findings of this mixed methods study revealed the existence of the following themes: usability of the discussion forums, lack of instruction, ease of use, time constraints, minimal exposure to discussion forums, using discussion forums to gain, share and seek information and socialisation.

Conclusion
Based on the main findings it is evident that there are several strengths and weaknesses associated with their use. Findings show that students generally use the discussion forums for the purpose of discussing assignments. However, it is clear that there is a need for instructors to encourage and provide guidance on how to use the forums. With a better understanding of the factors relating to the use of discussion forums, this online resource could be more readily accepted by students, thus providing a better collaborative learning environment.
**Presenter:** Troy Fuller

**Title:** Employee health in the 21st century: An investigation of exercise incentives in four Western Australian organisations

**Abstract:**
The first decade of the 21st century has shown how organisations are dynamic and turbulent. Many employees are time-poor, working longer and longer hours and are expected to be contactable 24/7, motivated and available to work. Research has shown that employee health is at risk. Some organisations are now offering incentives for employees to exercise (‘exercise incentives’), and rigorous research is needed to understand and manage initiatives that support the health of employees.

The research was driven by a Salutogenic (proactive) focus on health, developed by Aaron Antonovsky. A phenomenological, mixed methodology of focus groups, surveys and interviews was used. A definition and Exercise Incentives Model informed short and long-term recommendations. Outcomes were confirmed as relevant, timely and necessary.

Because the results have not been reported back to the organisations, the presentation will cover the research stages and strategies and some challenges addressed by the researcher.
Title: How do Parents Score: Exploring maternal religiosity and its relationship to sexual health education in the home.

Abstract:

Background
Parents are the primary source of adolescent sexuality knowledge and attitudes and family religiosity influences adolescent sexual behaviour. But Religion and sexual health are often not considered compatible, so parents are frequently left to deal with conflicting religious and sexual health advice. But parents often report uncertainty and fear of ignorance around educating their children about sexual health.

Methods
A 5 minute survey which was administered to 70 mothers with children, aged 10 to 19, was used to help define this perceived parental ignorance. The survey measured the relationship between maternal religiosity, sexual health knowledge and comfort discussing sexuality.

Implications
The findings of this study may give sexual health educators understanding about the capacity of mothers as religiously sensitive sexual health educators as well as guidance for resource content for parents of adolescents.

Results
Not available at this time.
Abstract:
Suboptimal treatment and poor survival in cancer patients living in rural and remote areas have been the objects of international and national concern. The disparity has been identified as a national priority by Cancer Australia’s CanNET Program, and by the Australian states including the WA Cancer and Palliative Care Network. Much of the detailed evidence describing the problem in Australia has arisen from targeted reviews in NSW and research using the WA Data Linkage System. Findings for prostate, breast, colorectal and lung cancers were that patients living in rural areas experienced poor access to therapeutic or reconstructive surgery and a worse outcome. Despite similar or better mammography coverage, initial surgery in a rural hospital for breast cancer is associated with greater need for re-excision or subsequent mastectomy and with poorer survival. Rural cancer patients are less likely to receive radiotherapy or hormonal treatment. Rural indigenous people with cancer are less likely to receive breast-conserving surgery, radical prostatectomy or any surgery for lung cancer. Rural cancer patients present later and had more concerns about time and transport costs incurred in receiving adjuvant therapy. They had longer delays in seeing a specialist and their GPs appeared to make referral decisions based on familiarity and ease of access to services rather than clinical indicators or need for multi-disciplinary care.

Any intervention that might improve rural cancer outcomes will be complex, involving multiple components that act independently and inter-dependently. There has been growing recognition of the challenges of conducting RCTs of complex interventions. Unless such trials illuminate processes and mechanisms, they often fail to provide useful evidence. If a result is negative, lingering doubts can persist as to whether the intervention was inherently ineffective, inadequately resourced, inappropriately applied to the context or whether the trial used a suboptimal design, comparison group or outcome measure. Thus experience has pointed to the importance of pre-trial developmental research in the following areas before evaluating a complex intervention: (i) defining the problem; (ii) understanding the context; (iii) developing the intervention; and (iv) developing the evaluation framework.

Aims
• To redress the inequalities in cancer treatment outcomes seen in Australian rural and remote populations
• Use non-metropolitan WA as the setting for the development of a ‘best prospects’ package of community, provider and patient-based interventions
• Evaluate using a factorial, randomised control trial.
Abstract:
The theory that mobile phone use might cause brain tumours probably originated not in any scientific observation but in talk-show publicity in 1993 for a court case in which a David Reynard alleged his wife Suzie’s mobile phone use had caused or accelerated the progression of the astrocytoma that killed her, aged 33, in 1992. The first relevant epidemiological study was published in 1996.

In May 2011, the International Agency for Research on Cancer (IARC) concluded that exposure to radiofrequency electromagnetic fields (RF-EMF) is possibly carcinogenic to humans. This conclusion was based on results of basic biological studies of the effects of RF-EMF, studies of the carcinogenicity of RF-EMF in experimental animals and epidemiological studies of the association between cancer and human exposure to RF-EMF. This conclusion was strongly influenced by the results of two case-control, epidemiological studies of mobile phone use and risk of brain tumours in adults: one conducted solely in Sweden and the international Interphone study. Two additional and potentially important epidemiological studies, one the first in children and adolescents, have been reported since the IARC’s conclusion was reached.

This lecture will outline the evidence that mobile phone use causes human brain tumours and seek to answer the two questions posed in its title: Is there a risk? Should we be worried?
Presenter: Joanne Connaughton and Susan Edgar

**Title:** Evidencing reflective practice with e-portfolios

**Abstract:**
Reflective practice is recognised as a graduate attribute in tertiary level health professional and education courses. Reflective practice has been defined as an ‘intentional and skilled activity in which a person analyses and describes his or her thoughts, actions, feelings, and behaviours and makes judgements about their effectiveness’ (Australian Physiotherapy Council, 2006).

To begin to master the skill of reflective practice, physiotherapy students from the university complete reflective journals whilst on clinical placement. Journals are commenced in first year during pre-clinical hours and then during formal clinical placements in second, third and fourth year. In 2009, students commenced writing their journals in blog format. A framework for reflective practice was developed (Connaughton & Edgar, 2011) to assist students with structuring their thoughts.

Clinical educators were able to review and assess students’ e-portfolios in real time, providing feedback and comments while students were on placement. Physiotherapy students welcomed the immediate feedback and embraced the blog format for reflections. Reflections were more detailed and on assessment presented with more in-depth analysis of situations and strategies for improvement. Students were placing more value on their reflective journals, thus engaging in reflective practice as desired by the Australian Physiotherapy Council.

The framework for assessment of students’ reflections is undergoing ongoing review with current action research including graduates’ perceptions of the worth of undergraduate e-portfolios. Initial findings from this review will be presented.

**References**

**Presenter:** Jacqui Francis-Coad

**Title:** Finding ways to facilitate student learning in practical laboratories

**Abstract:**

**Question**
What do students report facilitates their learning in practical laboratory sessions?

**Design**
Action research study.

**Participants**
Thirty two undergraduate physiotherapy students enrolled in second year gerontology laboratories.

**Intervention**
Tutor observations, minute papers and semi structured interviews were conducted over a nine week teaching period to gain the student perspective on what facilitated their learning.

**Outcome measures**
Data from the interventions were used to develop a questionnaire of items representing the construct of valued learning facilitators; these were ranked using a 5-point Likert scale.

**Results**
Valuable learning facilitators identified by students were categorised under three key headings: those provided by the tutor, those initiated by the students themselves and material resources. These were concept mapped to reveal three emergent themes: provide multiple opportunities for learning addressing all learning styles, provide formative learning support and provide resources to consolidate learning. Laboratory teaching plans were modified and a skills and behaviour checklist and expert video clips were developed for student use during the research cycle. Students ranked timely feedback from the tutor while they practiced the required skills and behaviours the highest valued learning facilitator followed by watching the tutor modelling the skill or behaviour required.

**Conclusion**
Discovering what students say facilitates their learning in practical laboratories can guide successful auditing of laboratory teaching plans to modify and create new learning opportunities and resources. This has the potential to improve student satisfaction and achievement of intended learning outcomes along with teaching performance through reflection and action.
Presenter: Cat Pardoe

Title: Are there associations between physical activity, fatigue, sleep quality and pain in people with mental illness? A longitudinal pilot study

Abstract:
Good mental health is imperative to the wellbeing of individuals, families, the community and the population as a whole. Symptoms of fatigue, chronic pain and poor sleep are common in people with mental illness and contribute to substantial loss of function. Physical exercise programs have been shown to decrease these symptoms in a range of pathological populations. The possible association of symptom severity and physical activity related to day- to- day- functioning, however, has not been explored in people with serious mental illness.

Methods
Inpatients of a metropolitan mental health facility were fitted with an actigraph which collected physical activity and sleep measures for an anticipated fourteen day data collection period. During this time, morning and evening pain and fatigue scores were collected on an eleven point numerical rating scale.

Results
Significant associations were found between morning pain and morning fatigue scores ($\beta = -0.44$, $P = 0.023$), morning pain and physical activity ($\beta = 12.34$, $P = 0.042$) and physical activity and evening pain scores ($\beta = 0.20$, $P = 0.017$). Fatigue tended toward interfering more with quality of life than did pain, but this was not significant ($P = 0.07$).

Conclusion
This study provided preliminary data suggesting associations between pain and fatigue, and intensity of pain and physical activity levels. This information can be used to generate hypotheses for future clinical trials.
**Presenter:** Laura Gotti

**Title:** Can regular use of the Cough Assist® device maintain lung function in children and adolescents with neuromuscular disease? A pilot study

### Abstract:

**Purpose**
Children and adolescents with neuromuscular disease have weak, ineffective coughs and reduced lung function due to weakened respiratory muscles. The aim of this study was to determine whether the regular use of the CoughAssist® device can maintain lung function in these subjects.

**Method**
A prospective observational case-matched cohort pilot trial was combined with a retrospective medical record review. Eight children (seven male) with neuromuscular disease participated. Four children regularly using the CoughAssist® were matched by age, height and mobility status with four currently not using the CoughAssist®, acting as a control group. Subjects performed regular spirometry over a four month period. Outcome measures: vital capacity, peak expiratory flow, peak cough flow.

**Results**
Mean age was 13.8 years (range 10-17 years). All required an electric wheelchair for mobility. Time series analysis revealed an increase in peak expiratory flow (p=0.001) and a maintenance but no increase in peak cough flow (p=0.708) or vital capacity (p=0.329), associated with CoughAssist® use.

**Conclusion**
This pilot study has identified that regular use of the CoughAssist® may assist with maintenance of lung function in the short term in those with neuromuscular disease, therefore reducing morbidity related to decreased lung compliance and ineffective cough.
Abstract:

Background
The timing of functional recovery of people who require prolonged mechanical ventilation (MV) during an intensive care unit (ICU) admission is unclear.

Objective
In patients who required a prolonged ICU admission, to: (i) report the proportion who were able to ambulate independently at hospital discharge and, (ii) determine if the duration of time between admission and when the patient first stood impacted on their capacity to ambulate at discharge.

Design
Comprehensive review of medical records.

Methods
Data pertaining to: (i) ambulation status prior to admission and at hospital discharge and, (ii) time between admission to the ICU and when they first sat out of bed, stood and ambulated were extracted on patients who required MV for ≥ 168 hours and survived their acute care stay.

Results
190 patients were included (52±18 yr; 126 [66%] males, Acute Physiology and Chronic Health Evaluation II score 20±8). Prior to admission 189 (99%; 95% confidence interval [CI], 98 to 100%) were ambulating independently, of whom 180 (95%) did not require a gait aid. On discharge from acute care 89 (47%; 95% CI, 40 to 54%) were ambulating independently, of whom 54 (61%) did not require a gait aid. Compared with those who stood within 30 days of ICU admission, a delay in standing of between 30 and 60 days increased the odds five-fold (95% CI, 2 to 11) of being unable to ambulate independently at the time of discharge.

Limitations
Retrospective data collection.

Conclusions
Following a prolonged ICU admission > 50% of patients were unable to ambulate independently at the time of hospital discharge. The time between admission and first stand was an important predictor of this outcome.
**Presenter:** Marco Barciela de Assis

**Title:** Comparison of land and water based exercise activity on acute blood glucose levels in type 2 diabetes patients

**Abstract:**

**Background**
Type 2 Diabetes is a disease in which the insulin produced by the body is not effective leading to a high concentration of sugar in the bloodstream. It is the most common type of diabetes with 85-90% of the diabetes patients, where most of them are overweight. The management of the high blood glucose in type 2 patients focus on lifestyle intervention, decreasing the risk of cardiovascular diseases and keeping the blood sugar in an appropriate level.

No previous studies have proven that exercising in the water can regulate blood glucose in patients with type 2 diabetes.

**Aim**

The aim of this pilot study is to compare the rate of decline in the acute blood glucose levels achieved with land based versus water-based exercise in patients with T2D.

The results of this study will allow us to determine whether or not water-based resistance exercise is effective in mediating the rate of decline in acute blood glucose levels in patients with T2D following exercise. The findings could help in formulating recommendations in the future as to the mode of exercise that could be delivered to patients with T2D to achieve stable long term blood glucose management.

**Method**

This research is a pilot study using a randomised cross over design. 8 subjects aged over 40 years old with T2D have been recruited. Patients must have stable blood glucose levels that are controlled by diet and exercise with a HbA1c (Glycosylated haemoglobin) levels <7%, and do not take any diabetes medication (e.g. metformin).

On the morning of the testing period patients measure their fasting blood glucose levels using a glucometer. Patients are also being requested to test blood glucose levels at the start and at the completion of their exercise session, and then 30 minutes, 1 hour, 1 hour 15 minutes, 1.5 hours, 1 hour 45 minutes and 2 hours post exercise after completing each session. Finally patients need to provide the fasting blood glucose levels for the following morning.

**Key messages**

**Hypotheses**

The rate of decline in blood glucose levels will be greater in patients following a water based exercise session compared to a land based exercise session.

Fasting blood glucose levels post exercise will be lower following a water based exercise session compared to a land based exercise session.
Motor development is a complex process of continued change. It evolves in response to interactions between an individual and their environment and encompasses all developmental domains. When examining what factors impact upon an individual’s motor development the individual, their environment and the task must be taken into account (Kulger, Kelso, Turvey, 1982; Gibson, 1979).

Longitudinal research is needed to fully understand the process of motor development yet few studies to date have managed to capture the developmental process from birth to adolescence and examine a range of factors that impact upon the motor development process.

Some developmental researchers have identified the existence of ‘critical periods’ during development (Payne & Isaacs, 1995). These periods are windows of opportunity where the individual is particularly receptive to environmental factors which impact upon their development. Schiamburg (1985) also described a time prenatally termed the epigenic period where a developing individual is particularly sensitive to potentially harmful environmental factors. The purpose of this study will be to identify modifiable risk factors influencing motor development from birth to adolescence. Of particular interest will be finding out whether these risk factors differ between the sexes and if there are any critical windows during childhood or adolescence which can be pinpointed as important to the motor development process.

The Western Australian Pregnancy Cohort (Raine) Study began in 1989 and has been tracking health outcomes in Western Australian children and their families since their mothers were recruited into the study at King Edward Memorial Hospital at 18 week pregnant. Two thousand eight hundred and sixty eight women were originally recruited to the study. Questionnaire and physical data have been collected at birth, 1, 2, 3, 5, 8, 10, 14, 16 and 18 years.

Motor coordination has been measured in the Raine Study cohort during the 10, 14 and 16 year assessments using the McCarron Assessment of Neuromuscular Development (MAND) (McCarron, 1982). Data on growth and development, mental health, illness and injury, asthma and allergies, physical activity, cardiovascular health, diet and nutrition, cognitive functioning, back pain and musculoskeletal disorders and behaviour have also been collected. Within terms of motor development research the Raine Study provides a unique source of prenatal, antenatal, childhood and adolescent data that covers a broad range of environmental, physical and mental factors.

In examining the pathways of normal development we can further identify the potential causes of compromised development and contribute to the volume of knowledge regarding developmental disorders such as Developmental Coordination Disorder (DCD). An Ecological Developmental perspective will form the theoretical basis from which the developmental pathways will be examined. An examination of a range of individual and environmental factors will provide a unique longitudinal profile of motor development.
Presenter: Caroline Bulsara and Jenny Lawrence

Title: Launching the Brightwater Centre: Embedding research within a non-government organisation.

Abstract:
In 2011, The Brightwater Care Group set about strategically creating a research centre within their organisation. Caroline Bulsara, appointed as centre manager in June 2011, has taken on the task of developing the centre and linking with universities and external organisations to build research capacity. The challenge is in capitalising on enthusiasm and innovation within a corporate setting whilst strategically identifying research priorities and opportunities within Brightwater. This presentation will explore the barriers and facilitators to a research culture outside of the university setting whilst showcasing some of the best innovations and practices within Brightwater.
**Title:** Floor surfaces and injury risk; Changes in dancer landing mechanics on varied dance surfaces

**Abstract:**

The relationship between elite dance performance on hard, non-compliant floors and injury has been the subject of much debate. A large body of evidence exists demonstrating the high incidence of injury in dancers to structures that cross the ankle joint. Dancers perform numerous landing tasks during training and performance and the ankle joint has been suggested to have specific mechanical limitations during landings. It is generally assumed that safe dance practice must incorporate the use of a ‘sprung’ or force reducing floor in order to decrease injury risk exposure. Humans demonstrate efficient regulation of lower limb dynamics during locomotion across varied surfaces yet it is unclear whether a connection between these locomotion dynamics and lower limb injury exists. The landing kinematics and kinetics were assessed in 14 elite level dancers performing single leg forefoot drop landings from 0.2 m onto dance surfaces with quantified varied mechanical properties. In addition to linear stiffness, the force reduction magnitudes of the test surfaces were quantified using sport surface testing apparatus, the Advanced Artificial Athlete (Metaalmaatwerk, NL). Landing mechanics were modelled from data captured at 250 Hz using a 12 camera opto-reflective system and integrated force platform. Ankle joint sagittal plane kinematics (dorsiflexion; peak range of motion, angular velocity and acceleration) and kinetics (peak joint power and total work) were significantly affected (p<0.02) by the floor surfaces during a phase bound by the forefoot and heel contact events of the landing cycle. Dependent variable magnitudes increased in conjunction with decreases in surface force reduction and had a latency of <100 ms after forefoot contact. Flexion range of motion was the only variable analysed at the knee joint to significantly change across surfaces (p<0.02). Under the analysed drop landing conditions and in association with decreasing surface force reduction, the reported change in ankle joint mechanics may be interpreted as an increase in mechanical demand at the ankle joint. Further investigation of the stress applied to the soft tissues that cross the ankle joint under these conditions would be beneficial. The short latency of the changing dependent variables post- forefoot contact suggest that these dynamics occur during a period of limited cognitive motor control which may have further injury risk implications regarding joint stabilisation. Although evidence has been provided suggesting potential surface related injury risk mechanisms, further validation of these findings is required incorporating a broader range of tasks and different cohorts.
## Presenter: Cecily Cropley

### Title: The theoretical orientations embraced by counsellors and the development of their therapeutic practices

### Abstract:
There are many different theoretical approaches to psychological counselling of which training courses realistically cover only a few. While these approaches are well examined in current literature, it is less apparent which if any of the particular orientations and techniques are utilised by counsellors within their practices. This study explores the experiential relationship between the theoretical orientations embraced by five counsellors, and the development of their therapeutic practices throughout their careers. The counsellors were employed within a nongovernment agency that provides services for women. Semi-structured interviews were adopted to elicit from each participant a detailed narrative account of the existential issues and social particularities associated with their personal journeys to professional competency. Textual analysis of the interview transcripts revealed a set of experiential themes that emerged from the lived experiences of the five women interviewed, and may have significant implications for our understanding of the development of therapeutic competency. Themes explored are anxiety and confusion experienced by the novice counsellor; counselling as a developmental journey that is both personal and professional in nature; therapeutic authenticity as a developmental possibility rather than an educational qualification or theoretical orientation; the therapeutic significance of a “person centred” practice; and the developmental significance for therapeutic competency of embracing a theoretical orientation with passion. Results reveal a number of significant implications for counselling training and practice. For example, new counsellors could gain confidence if made aware of the developmental nature of a counselling career. Effective supervision could be provided within a developmental framework.