



THE UNIVERSITY OF  
**NOTRE DAME**  
A U S T R A L I A

# Institute for Health and Rehabilitation Research

Research Seminar

17 Dec 2009



## Program

Time	Name	Title
9.00	Paola Chivers	Individual, behavioural and environmental pathways to healthy weight from birth to adolescence.
9.15	Kate Martin MHSc prop	Efficacy of a graded exercise rehabilitation program following an Autologous Tenocyte Injection in the recovery from lateral epicondylitis : A Pilot Investigation
9.30		
9.45	Maria Doolan MEd prop	Development and Trial of Report Card on Children's Physical Activity in Western Australia
10.00		
10.15	Ben Piggott	Keeping players on the field!! A review of athlete monitoring procedures in a semi-professional Sporting environment.
Morning tea		
11.00	Steve Kinnane	Fitzroy Valley Alcohol Restriction Reports
11.15	Anna Haebich	Health services for Nyungah people: An historical perspective
11.30	Kathryn Hird	Impact of aphasia on fluency in natural language
11.45	Di Arnold-Reed	Back....To The Future- Primary Health Care Research
12.00	Rhys Powell	Levels Of Muscle Activation During Unweighted Shoulder Rehabilitation Exercises
12.15	Sophia Nimphius	Lag Time: The Effect Of A Two Week Cessation From Resistance Training On Force, Velocity And Power In Elite Softball Players
Lunch		
1.00	Mark Fear	Understanding the interaction between ageing and the human transcriptome.
1.15	Beth Hands	Does perceived competence, motor competence or fitness best predict physical activity among adolescents?
1.30	Fleur McIntyre	Perceived motor competence, actual motor competence and physical activity in 6- to 9-year-old children: A longitudinal study
1.45	Max Bulsara	Trends In The Incidence Of Childhood Type 1 Diabetes In Australia
2.00	Gerard Hoyne	A new mouse model for fatty liver disease and Type 2 diabetes
2.15	Fiona Naumann	A Multi-Modal Rehabilitation Program for Breast Cancer Survivors.
2.30	Fiona Farrington	"Look at me now, I'm hot!" The Women's' perceptions of the benefits of A multi-modal

		rehabilitation program for breast cancer survivors.
Afternoon tea		
3.15	Liz Bradshaw	Extra food intake and depressive symptoms in teenagers: Is there a relationship?
3.30	Paul Rycroft	Using sports analysis software as a teaching and learning tool to foster reflection in university students: An action research project.
3.45	Anne- Marie Hill	The effect of patient education for the prevention of in hospital falls in older patients – results of a randomized controlled trial
4.00	Karen Clark-Burg, Selma Alliex	Videoing as a teaching and learning tool in an undergraduate nursing curriculum
4.15	Pip Gavranich	Women in Leadership Roles: Working Through 'The Change'
4.30	Ben Wand	Tactile Thresholds are Preserved yet Cortical Sensory Function is Impaired in Chronic Non-Specific Low Back Pain Patients
Sundowner	Close	

**Presenter: Paola Chivers**

**Title:**

Individual, behavioural and environmental pathways to healthy weight from birth to adolescence.

**Abstract:**

A synopsis of PhD progress to date is provided on the longitudinal investigation of pathways to healthy weight using data from the Western Australian Pregnancy (Raine) Cohort. The study focus is based on representing individual, behavioural and environmental aspects. Key individual variables include gestational age, mother's BMI, early feeding, McCarron Assessment for Neuromuscular Development, aerobic fitness, fitness tests, and activity levels. Behavioural variables include parent reported motor competence, physical activity, sedentary behaviour, Harter Self-perception, and attitudes and values to physical activity. Environmental variables include family income, stress, mother's work, built environment, and school. A trajectory of BMI from birth to 14 years is presented using linear mixed modelling with result highlights from testing obesogenic factors. Adiposity rebound, early feeding and the role of physical activity with weight status is discussed. Bringing together these findings, inter-relationships between individual, behavioural and environmental factors are shown using structural equation modelling.

**Presenter: Kate Martin**

Title: Efficacy of a graded exercise rehabilitation program following an Autologous Tenocyte Injection in the recovery from lateral epicondylitis : A Pilot Investigation

### **Introduction**

Lateral Epicondylitis (LE) is a repetitive injury caused by micro-tears in the origin of the wrist extensor muscle group, the tendon's reduced capacity to regenerate and ongoing tendon cell death which leads to chronic tendinosis. Currently the non-invasive treatments that exist for severe cases who are possible candidates for surgery are limited. The Autologous Tenocyte Injection (ATI) is a novel procedure that involves harvesting, cultivation and re-implantation of tenocyte cells into the damaged tendon. Following this procedure a graded exercise rehabilitation protocol will be implemented on an experimental group of participants in order to assess whether this further improves the outcomes following the procedure.

### **Methods :**

20 to 24 patients who have satisfied the surgeon's selection criteria and have given their informed consent will be allocated to a control or experimental group in a matched pairs randomized controlled design study. Subjects will be assessed for test measures pre surgery and at 1 month, 2 months, 3 months and 6 months post surgery. The following assessments will be completed, MRI (pre, 6 and 12 months only), pain, range of motion, self reported function and grip strength. These measures will be used in comparison between the exercise rehabilitation protocol (experimental group) and the control group (usual care). A statistical analysis will be completed using a 2-way repeated measures ANOVA with an alpha level of  $p < 0.05$  indicating significant differences between groups.

### **Anticipated Findings:**

The results are expected to show a significant increase in strength, range of motion, function and decrease in pain, with the exercise group in comparison with the control. Also that a graded exercise rehabilitation program can better improve outcomes following the ATI treatment.

**Presenter: Maria Doolan ( MEd proposal)**

**Title:** Development and Trial of Report Card on Children's Physical Activity in Western Australia

**Abstract:**

The purpose of this study is to devise an evaluation tool in the form of a report card, which will provide an overview of Western Australian children and adolescents' physical activity levels. The report card will assist in the identification of the state's strengths and weaknesses with regards to young people's physical activity opportunities and help guide planning, implementation and evaluation of intervention strategies going forward. The Report Card will be trialed in both a rural and metropolitan community as a precursor to statewide implementation.

**Presenter: Ben Piggott**

**Title:** Keeping players on the field!! A review of athlete monitoring procedures in a semi-professional Sporting environment.

**Abstract:**

In any competitive sporting environment, it is crucial to a team's success to have the maximum number of players at their peak level of fitness and free from injury and illness throughout the season. This relies on the art of coaching to provide the optimal amount of training to allow for adaptation without exceeding an individual's exercise tolerance and recovery capacity (Bruin, Kuipers, Keizer, & Vander Vusse, 1994). This presentation will examine the various methods used to monitor training load and athlete wellness in a semi-professional sporting environment. Methods include use of athlete screening, monitoring of training loads, weekly scheduling, use of GPS and the testing of hydration status. These monitoring methods will be discussed and practical applications of these will be presented.

**Presenter: Steve Kinnane**

**Title:**

Fitzroy Valley Alcohol Restriction Reports

**Abstract:**

Fitzroy Crossing is a Central Kimberley Town with a majority Aboriginal population of approximately 1500 people. It is founded on Bunuba land. Beginning as an outpost of colonial government in 1892 with the establishment of the Post Office and Telegraph Line, within five years a license for a 'wayside house' was granted creating what is now known as the Fitzroy Crossing Inn. This constituted the beginning the sale of alcohol in this region. From the 1890s to the late 1960s, Indigenous peoples of the region remained close to their country, living on their lands as stock-workers supporting pastoral leases and spending significant periods of the Wet Season maintaining Culture and Law. Equal wages were established in 1968 and by 1974 hundreds of Aboriginal people were forced off stations they had worked for decades into a refugee existence, congregating around the town of Fitzroy Crossing within a period of Indigenous policy described as 'Dole and Control.' The four key language groups of Bunuba, Gooniyandi, Walmajarri and Wangatjunga were thrown into close proximity on Bunuba Country. While maintaining a generally peaceful coexistence between their language groups, individual and family groups suffered directly from welfare dependency and paternalistic policies which, in concert with a lack of resources, a ready supply of alcohol and continuing disadvantage, led Fitzroy to be over represented by alcohol related violence, acute and chronic health problems and significantly reduced life expectancy. Much of the alcohol consumed by Fitzroy residents was purchased from the Crossing Inn as take-away alcohol.

Following repeated requests from women of the Fitzroy Valley for something to be done about the impact of Alcohol abuse in the region, on 27 September 2007, the Director of Liquor Licensing (WA) released his decision on restricting the sale of packaged liquor in Fitzroy Crossing. It was his finding that as of 2 October 2007; the following restriction would be in place for six months:

*The sale of packaged liquor, exceeding a concentration of ethanol in liquor of 2.7 per cent at 20 degrees Celsius, is prohibited to any person, other than a lodger (as defined in Section 3 of the Act).*

The Drug and Alcohol Office (DAO) contracted the University of Notre Dame Australia (UNDA), through the Nulungu Centre for Indigenous Studies (NCIS), to undertake an evaluation of the impact of the restriction. The aim of the evaluation is to analyse the perceptions, views and opinions of people and organisations in Fitzroy Crossing and Fitzroy Valley communities, in relation to the effects of alcohol use, both prior to, and since the introduction of the liquor restriction for a period of two years with reviews at three, six, twelve and twenty four months.

On 19 May 2008, the Director of Liquor Licensing extended the restriction indefinitely with an annual review to test its ongoing effectiveness.

This presentation will discuss the findings of the 12 month review of the Alcohol Restriction in Fitzroy Crossing. Firstly, the context for the review and the methodology, utilising qualitative and quantitative data, will be discussed. Secondly, the findings of the twelve month evaluation will be examined against the aims of the restriction and the impacts of the restriction for the people of the Fitzroy Valley. Thirdly, it will consider changes evident in collection of data for the 24 month review and relate community concerns regarding a lack of follow-up support for community respondent recommendations for greater investment in the people of the region.

**Presenter: Anna Haebich**

**Title:** Health services for Nyungah people: An historical perspective

**Abstract:**

Anna will briefly discuss the changing dynamic of health services for Nyungah people under assimilation policy in the 1950s and 1960s. The broader context is medical historian Warwick Anderson's (2007) claim that 'personal and collective memory' of experiencing health services as 'terrains of moral policing, neglect, incompetence and spiritual violation' continues to shape Aboriginal responses today.

**Presenter: Kathryn Hird**

**Title:**

Impact of aphasia on fluency in natural language

**Abstract:**

Language research is typically based on modular paradigms associated with neural localisation of language function in the context of de-contextualized tasks involving linguistic categories such as sentence structures, words and phonemes. Recent work in neuroscience however is concerned with functional interaction involving large-scale self organising brain networks. It is our contention that the advanced neuro-imaging procedures demand an equivalent refinement in the sampling domain, and that the collection and analysis of natural language samples is essential

This paper describes a measurement system designed to quantify fluency in natural spoken language. The system classifies environmental and breathing noise, and estimates means and standard deviations for the three lognormal distributions associated with spontaneous speaking: short pauses, long pauses and speech segment duration. The analysis of natural samples produced by three diverse aphasic speakers demonstrates the sensitivity of the fluency measure as well as the profile of independent or correlated changes across the parameters. The system yields objective and sensitive measures of communicative efficiency for individuals and across a variety of speaking contexts.

Keywords:

Fluency, language, aphasia, objective, measurement

**Presenter: Di Arnold-Reed**

**Title:** Back....To The Future- Primary Health Care Research

**Abstract:**

The mission of the General Practice and Primary Health Care Research (GP&PHC) Unit at the School of Medicine continues to progress and develop since its inception in 2006. The Unit receives core funding through the Commonwealth Government Department of Health and Ageing Primary Health Care Research Evaluation and Development (PHCRED) Strategy Phase 2 and is also in receipt of independent research grant funds.

The objectives of the Unit are to:

- Encourage sustained involvement in primary care research
- Participate (independently or collaboratively) in research which will inform practice
- Identify research projects that will engage general practitioner (GP) interests
- Provide core academic support for early career primary care researchers
- Develop a group of general practices capable of undertaking clinically relevant research (ie research practices)
- Encourage GPs and other health professionals to have “hands on” roles in research projects
- Support undergraduate student interest in primary care research
- Foster broader consumer involvement in primary care research
- Encourage primary health care research interests in the Kimberly region in partnership with the Nulungu Centre for Indigenous Studies, University of Notre Dame, Broome Campus.

This presentation will outline some of our research projects (published, ongoing and planned). These include:

- A census of current capacity for treatment services among existing general practices in Western Australia
- The role of practice nurses - what patients (consumers) want
- General practice as potential career aspiration for graduate entry medical students
- Identifying uncertainties in cancer patients with regard to health systems navigation
- Risk factor modification studies for cardiovascular disease
- An analysis of the extent of multimorbidity and disease burden in patients attending two Western Australian general practices
- Tracking outcomes of prostate cancer patients through primary and tertiary presentations using WA data linkage techniques
- Patients’ perceptions of barriers to discussing and testing for sexually transmitted infections (STIs) in general practice.
- Community health forums - what patients (consumers) want from primary care research
- Multimorbidity in drug-addicted patients enrolled in a community based methadone program delivered through general practice
- Knowledge of GPs about radiation exposure via imaging requests

**Presenter: Rhys Powell**

**Title:**

**Levels Of Muscle Activation During Unweighted Shoulder Rehabilitation Exercises**

**Abstract:**

Normal shoulder function is maintained by the smooth cooperation of both the static and dynamic structures comprising the glenohumeral (GH) joint. Following a shoulder injury, the implementation of appropriate exercises is critical to return stability and function to the upper limb. The level of muscle activity in the shoulder girdle musculature was measured using electromyography (EMG) during eight shoulder rehabilitation exercises without resistance. Nineteen ( $n = 19$ ) asymptomatic, right hand dominant adult males, who had no history of right shoulder or neck injury or pain requiring treatment and no contraindications to fine wire electrode placement performed eight rehabilitation exercises, including the "pendulum", isometric shoulder abduction, internal and external rotation, full and empty can, prone external rotation and supine protraction. The level of muscle activation was recorded using intramuscular (supraspinatus, infraspinatus, upper and lower subscapularis, middle and lower trapezius, serratus anterior and latissimus dorsi) and surface (upper trapezius, anterior, middle and posterior deltoid) electrodes. Ten repetitions of each exercise were normalised and analysed for peak and average EMG amplitude. The results were expressed as a percentage of each participant's maximum voluntary isometric contraction (MVIC) and ranged from 0.20% to 60.44% of MVIC. Middle trapezius was the most active muscle during all the exercises ranging from 28.48% to 55.89% of MVIC. The full can exercise was deemed the most appropriate exercise to prescribe in order to target supraspinatus as the degree to which the deltoid muscle was active, although not significant, was less than the empty can exercise ( $p = .090$ ) and prone external rotation ( $p = .125$ ). Upper subscapularis muscle activity was greater than lower subscapularis muscle activity for all exercises except internal and external rotation and empty can. The levels of muscle activation suggest that these eight exercises may be safely incorporated into a shoulder rehabilitation program prior to the implementation of weighted exercises for individuals recovering from injury or surgery. In addition, the level of muscle activation of each exercise determined in this study may be used for appropriate progression in exercise intensity during the rehabilitation process following shoulder joint injuries.

**Presenter: Sophia Nimphius**

**Title:**

**Lag Time: The Effect Of A Two Week Cessation From Resistance Training On Force, Velocity And Power In Elite Softball Players**

**Abstract:**

There is limited research examining the effect of “lag time” on maximal testing. Following the completion of a mesocycle or phase of resistance training, many strength coaches and sport scientists test athletes to measure improvements in strength and power as a result of their training. However, accumulated fatigue and inadequate lag time for an athlete to learn how to utilize the increased strength and power may result in lower testing results immediately post (within 48-96 hours) the last training session. **PURPOSE:** To examine the difference between a typical cessation (96 hours) and an extended cessation (14 days) from resistance training on countermovement jump (CMJ) height and associated force, velocity and power characteristics of the CMJ in concurrently training elite softball players. **METHODS:** Elite female softball players ( $n=7$ ) from the Western Australian Institute of Sport ( $18.6 \pm 1.8$  = years; height =  $165.1 \pm 6.3$  cm; weight of  $77.3 \pm 7.6$  kg; 1RM squat =  $82.5 \pm 7.7$  kg) participated in this study. Following a seven week strength mesocycle subjects performed an unweighted CMJ on a force plate (400 Series, Fitness Technology) while holding a light weight plastic bar attached to a position transducer (PT9510, Celesco). Ballistic Measurement System software (Fitness Technology) was utilized to calculate jump height (JH), peak velocity (PV), relative peak force (PF/kg), relative peak power (PP/kg), velocity at PP and relative force at PP. Repeated measure one-way analysis of variance was used to compare differences from 96 hours to 14 days cessation from training. The relationships between JH and F, V and P variables were examined by Pearson’s product moment correlation. Statistical significance was set at an alpha level of  $p < 0.05$ . The magnitude of effect was also calculated for each measure. **RESULTS:** As displayed in Table 1, a significant increase in velocity at PP occurred from 96 hours to 14 days post training. Moderate to large effects occurred in PV, relative PF, relative PP and velocity at PP. The correlation between JH and PV increased from .741 ( $p = .056$ ) to .908 ( $p=.005$ ) as did the relationship between JH and velocity at PP; .743 ( $p=.056$ ) to .873 ( $p=.010$ ).

**CONCLUSION:** It appears a longer period of time between the completion of a mesocycle and subsequent testing has no effect on CMJ height. However, in these concurrently training athletes, the means by which they produce power during the CMJ does alter. Increases in PV and relative PP with apparent decreases in relative PF indicate that athletes may adopt an improved rate of force development instead of a maximal force approach to attain their JH. This alteration may be a result of having time to utilize their “new strength” in or time for residual neural fatigue to recover. Although the mechanism for this large (18.1%) improvement in velocity at PP is only speculative, it can be stated rest time and acute training history are critical components to control when testing athletes.

**PRACTICAL APPLICATION:** Examining changes in magnitude and timing of the variables that combine for maximal jump height may improve both the sport scientist and strength coaches understanding of how an athlete utilising their force and velocity capabilities to produce power. Additionally, understanding the alternations that may occur after a “lag” or after an extended period of time following a phase in training may give both the coach and athlete a better indication of when the results are expected to be maximised.

**Presenter: Mark Fear**

**Title:**

**Understanding the interaction between ageing and the human transcriptome**

**Abstract:**

Ageing is a complicated, progressively deleterious process, the effects of which manifest in humans as a gradual loss of function, increasing incidence of disease and ultimately death. Given that ageing in model organisms can be modulated the potential exists to increase human longevity, both directly and through decreased susceptibility to disease. Here we show that contrary to previous thought, genome wide transcriptional activity does not display an exclusively linear correlation with ageing, but rather, in human skin, undergoes a period of significant transient change between 30 and 45 years of age. The identified transient transcriptional changes suggest a period of heightened metabolic activity and cellular damage mediated primarily through the actions of TP53 (tumour protein 53) and TNF (tumour necrosis factor). We also identified a subgroup of the population characterised by increased expression of a large group of hair follicle genes that correlates strongly with a younger age of onset and increasing severity of androgenetic alopecia. Finally, we demonstrate that inconsistent results between previous microarray studies of human ageing are largely corrected by adjusting for the differences in sampling of “young” or baseline individuals who fall within this period of substantial transcriptional change. These results indicate a crucial role for a discrete period of transcriptional variability, corresponding with an age of declining reproductive fitness, in the initiation of the human ageing process. This suggests a specific time period in which methods to modulate the ageing process may be particularly successful and which must be taken into account in the design of future ageing studies.

**Presenter: Beth Hands**

**Title:** Does perceived competence, motor competence or fitness best predict physical activity among adolescents?

**Abstract:**

Introduction. According to motivational theorists (Bandura, 1997; Harter, 1999) both perceived and actual competence will contribute to an individual's motivation to engage in specific behaviours. While research with primary school children has shown strong links between motor competence, perceived competence, and physical activity levels, findings with adolescents are less conclusive. The contribution of aerobic fitness to physical activity level is often largely ignored in this age group. In this study with adolescents we proposed that perceived and actual motor competence as well as aerobic fitness will influence level of physical activity, and these influences may differ between males and females.

Methodology. The sample comprised 636 participants (309 males and 327 females) with a mean age of 14.03 (0.19) years from the Western Australian Pregnancy Cohort (Raine) Study. Physical activity was determined by deriving a mean daily step count based on minimum of 4 days pedometer records. Motor competence was based on the Neuro-Developmental Index (M=100,SD=15) derived from scores from the McCarron Assessment of Neuromuscular Development (McCarron, 1997). The PWC170 measured aerobic fitness and the Harter Self-Perception Profile for Adolescents (1988) was used to measure perceived competence in each of 6 competence domains (scholastic, social, athletic, physical appearance, behavioural conduct, close friendship) and feelings of global self-worth. Multiple regression was used to examine the relationship between motor competence, aerobic fitness, perceived competence, and physical activity.

Results and conclusions. Males took significantly more steps per day ( $p < .001$ ), had higher aerobic fitness ( $p < .001$ ) perceived higher athletic competence ( $p < .001$ ), and physical appearance ( $p < .001$ ) than the females. On the other hand, females had higher self-perceptions relating to behavioural conduct ( $p < .001$ ) and close friendship ( $p < .001$ ) than the males. Stepwise regression analysis revealed that gender (male) ( $b = .12$ ,  $p < .001$ ), perceived athletic competence ( $b = .20$ ,  $p < .001$ ) and aerobic fitness ( $b = .17$ ,  $p < .001$ ) were significant positive predictors of physical activity. Of interest, motor competence made a significant negative contribution ( $b = -.11$ ,  $p = .005$ ). Overall the model accounted for 12.2% ( $p < .001$ ) of the variance. Programs that focus on enhancement of perceived athletic competence and improved fitness may be particularly relevant for adolescents in order to achieve greater levels of physical activity. Girls' lower perceived athletic competence and appearance continue to be of concern in adolescence.

**Presenter: Fleur McIntyre**

Title: Perceived motor competence, actual motor competence and physical activity in 6- to 9-year-old children: A longitudinal study

**Abstract:**

*Introduction.* The influence of motor competence and perceived competence on physical activity in children has been conceptualised in several socio-ecological models (e.g. Stodden et al.,2008; Welk, 2009). However, these models have not been empirically tested with young children, nor considered how these might differ between boys and girls. The aim of this study was to test the contribution of actual and perceived motor competence to physical activity levels among young children, and to examine how these relationships might evolve over an 18 month time frame.

*Methodology.* The participants were 201 six- to nine-year-olds. Measures were taken at 6-monthly intervals over 18 months. Motor competence was determined by deriving a composite score from a criterion-based assessment of the run, throw, jump and dynamic balance. Perceived motor competence was measured using the Self Description Questionnaire (Marsh, 1988) and physical activity was determined by deriving a mean daily step count based on a 7- day pedometer record.

*Results and conclusions.* Multiple regression analysis revealed that actual, but not perceived, motor competence predicted physical activity level, and this was significant at an earlier age in boys (7 years) ( $\beta=.338$ ,  $p=.000$ , 4% of variance explained) than girls (9 years) ( $\beta=.345$ ,  $p=.029$ , 12% of variance explained). Actual motor competence explained 30% of the variance ( $\beta=.587$ ,  $p=.000$ ) in 9-year-old boys' physical activity levels. Using Linear mixed model analysis, actual motor competence ( $p=.02$ ), gender ( $p=.00$ ) and school ( $p=.019$ ) were identified as the main significant contributors to physical activity level over this age range. In young children, the motivation to be active is driven by a child's actual skill level rather than their self-perceptions. Additionally, the significance of gender means consideration must be given to boys and girls developing physical activity behaviour differently, with the impact of competencies having significant influence at different ages.

**Presenter: Max Bulsara**

**Title:** Trends In The Incidence Of Childhood Type 1 Diabetes In Australia

**Abstract:**

There is marked global variation in the incidence of Type 1 diabetes (T1DM). Previous reports in NSW (1990-2002), WA (1985-2002) and Victoria (from 1999-2002) have shown a steady increase in incidence. The aim of this study was to examine the trend in T1DM incidence in Australia from 1999 to 2005.

Children with newly diagnosed T1DM, aged <15 years, who developed T1DM in Australia were included in this analysis. Primary ascertainment in all states except WA was from the state based APEG diabetes registers. Primary ascertainment in WA was from a prospective population-based diabetes register at PMH. Secondary ascertainment for all states except WA was from the National Diabetes Register, maintained at the AIHW and in WA from the WA Hospital Morbidity Data System. The capture-recapture method was used to estimate complete case ascertainment. Population estimates were obtained from the Australian Bureau of Statistics based on census data. Patients with type 2 diabetes or aged  $\geq 15$  years at diagnosis were excluded. Age-standardised yearly incidence rates were calculated using the whole Australian population < 15 years old as the reference population. Poisson regression models were used to investigate linear time trends in incidence. Non-linear time trends were investigated using Generalised Additive Models under a Poisson distribution.

Overall case ascertainment using dual sources was > 99%. Incidence rates increased in all states studied/year (WA 3.1%, NSW 2.8 %, SA 1.2%, ACT 5.2% and TAS 13.1%). Overall boys and girls had similar incidence rates, however age-specific gender rates varied. Incidence of T1DM increased with age.

In conclusion, there has been a significant increase in T1DM incidence in Australia from 1999-2005; this is likely to be attributable to more than just genetic risk factors and environmental triggers may play an important role. Further analysis of regional and seasonal variation and may further our understanding of disease trends.

**Presenter: Gerard Hoyne**

**Title:**

A new mouse model for fatty liver disease and Type 2 diabetes

**Abstract:**

The incidence of type 2 diabetes and obesity is increasing significantly in the human population throughout the world and the increased prevalence is thought to be influenced by genes and the environment. Fatty liver disease has been characterized by two stages, (i) simple steatosis (i.e. fat in hepatocytes) that can progress to non alcoholic fatty liver disease (NAFLD) that is characterized by hepatocellular injury, liver inflammation and fibrogenesis that can lead to cirrhosis, liver cancer and eventually liver failure. Around one quarter of Australians have NAFLD that is caused by being overweight/obese and having type 2 diabetes and the metabolic syndrome. Understanding the molecular basis for this disease may lead to better diagnosis of patients at risk of developing NFALD and T2D. We have used a phenotype driven ENU mutagenesis screen in mice to identify a novel mouse strain called "Fatso" that develops type 2 diabetes and obesity. The mutation occurs in a novel gene and in the work to be presented we will describe the key features of the disease phenotype in the Fatso strain as it has become apparent that the mice develop fatty liver disease after ~18 weeks of age from simply being on a normal diet.

**Presenter: Fiona Naumann**

**Title:**

**A Multi-Modal Rehabilitation Program for Breast Cancer Survivors.**

**Abstract:**

**Introduction:** As a result of improved treatment, people with cancer are surviving longer. Improved survivorship has also led to an increasing recognition of the need to manage the side effects of cancer and its treatment.

**Methods:** This stage 1, RCT pilot study examined the effectiveness of an 8 week, multi-modal rehabilitation program on physical and psychological function of 34 breast cancer survivors. Specifically it compared the effectiveness of either: exercise only (Ex, n=10), counselling only (C, n=8), exercise and counselling (ExC, n=8) or usual care (UsC, n=8).

**Outcomes:** At baseline, there was no significant difference between groups for age, height, weight, BMI, body composition, cancer stage, treatment, predicted VO<sub>2</sub> max, strength, flexibility, depression (BDI), self-efficacy (Stanford Emotional Self-Efficacy), fatigue (Piper) and quality of life (FACT-B). After 8 weeks, there was a significant improvement in VO<sub>2</sub> max, upper body strength and flexibility in the Ex and ExC group when compared to the C or UsC care groups (p<0.05). Significant improvements were also observed in emotional self efficacy for the Ex, C, ExC group compared to UsC; QoL for the ExC group compared to the single modalities or UsC; significant reduction for depression in the Ex and ExC group compared to UsC and significant reductions of fatigue in the C group compared to E and UsC, and the ExC group compared to E and UsC (p<0.05).

**Conclusions and Recommendations:** Exercise resulted in improvements of physical function, emotional self efficacy, and depression, supporting past research. Counselling had the greatest improvement on fatigue levels. When counselling was combined with exercise, the benefits were even greater. QoL improvements were also greatest for the combined ExC group, when compared to the single modalities. These preliminary results suggest that a multi-modal program, which provides survivors with the skills to manage both their own mental and physical health, results in enhanced rehabilitation.

**Presenter: Fiona Farrington**

**Title:** “Look at me now, I’m hot!” The Women’s’ perceptions of the benefits of A multi-modal rehabilitation program for breast cancer survivors.

**Abstract:**

**Introduction:** This research is a pilot, exploratory study into the experiences of the women involved in breast cancer survivor program conducted at the University of Notre Dame Australia, Fremantle Campus. The study explores the women’s level of satisfaction with the program and the perceived physical, emotional and social benefits derived from participation in the program.

**Methods:** The research uses a combination of quantitative and qualitative methods to determine levels of satisfaction and perceived benefits. Participant (n=7) were interviewed for between 45 and 70 minutes each. The interviews were semi-structured and involved 7 statements that were scored on a 5 point likert scale from strongly agree to strongly disagree. After each statement the researcher asked a series of set questions and probes to further explore the women’s’ perceptions of the benefit of the program. The researcher recorded this information in writing. This allowed the researcher to continually check the authenticity of recorded information with each participant. This information was coded into themes using illustrative quotes to provide further meaning to the women’s experiences.

**Outcomes:** All participants either agreed or strongly agreed that they were satisfied with the program. Major themes identified include support, safety, professionalism and individual approach. They all either agreed or strongly agreed that they derived a physical and emotional benefit from the program. Themes included being fitter, stronger, more organized, self awareness, self efficacy, and regaining control. Responses regarding a social benefit varied from strongly agree to disagree. Themes included communication, opportunities, and confidence.

**Recommendations:** All the women would recommend the program to others with breast cancer. For many of these women the experience of this program has helped in rebuilding not only their health but also their sense of well being. Their stories of empowerment emphasize the value the women place on this program and that is important.

**Presenter: Liz Bradshaw**

**Title:**

Extra food intake and depressive symptoms in teenagers: Is there a relationship?

**Abstract:**

Depression in adolescents is common and is associated with a number of hazardous behaviours, including suicide. The current diet of adolescents is unhealthy and the consumption of energy dense, nutritionally poor extra foods is high. Research to be undertaken in 2010 will explore whether there is relationship between the intake of extra food and depressive symptoms in adolescents. A daily food list to capture the amount and type of extra food items being consumed and a standardized questionnaire for self-report depressive symptoms will be administered to students in grade 8 -12 from a large secondary school. Correlation, T tests, ANOVA post-hoc and a Logistic Regression modeling will analyze age and gender variations in the consumption of extra food and the prevalence of depressive symptoms, possible differences in weekend versus school day intake, and the links between extra food and depressive symptoms. Findings from the proposed research can potentially be of great benefit to students, parents and the school community. The findings may provide an overview of the intake of extra food by the school's students, which would be insightful for parents and have implications for school canteens. In addition, the findings may be important for early detection of students who may be experiencing depressive symptoms and allow parents and the wider school community to be aware of the appropriate supportive mechanisms surrounding mental health. Lastly, the findings may shed light on the timing and content of nutrition and mental health education for secondary school students.

**Presenter: Paul Rycroft**

**Title:** Using sports analysis software as a teaching and learning tool to foster reflection in university students: An action research project.

**Abstract:**

The objective and authentic assessment of practical skills in tertiary settings is a challenge. Universities constantly review ways to best develop and assess the expected (or mandated) practical skills in an environment of greater student numbers in courses, higher staff / student ratios, accommodating for individual differences in student abilities. One solution is to video performance for later review and analysis. This process provides students and their teachers the opportunity to reflect on performance and subsequently plan and implement positive behavioural changes. While video analysis has been used for some time in university training, limited access to editing facilities and technical expertise has made this process quite tedious for both student and lecturer and limited its uptake. Performance analysis software programs are widely used in the sports science that allow the user to code, sort and annotate video footage using specifically designed templates. We evaluated one such program as both a teaching and assessment tool in units offered in Physiotherapy, Health and Physical Education, Education, Nursing and Counselling degrees. We encountered a number of difficulties associated with student access to the software, storage of video footage and student use. Even so, we were encouraged by the quality and depth of the students' self reflection after using the software. To overcome these problems, we have developed a simple web-based program, *Critique*. This paper reports on the design, development and piloting of the program involving 3 Universities across 5 different disciplines. Each included *Critique* into their teaching and assessment programs in different and innovative ways. We now plan to expand the availability of this program to other institutions.

**Presenter: Anne-Marie Hill**

**Title:** The effect of patient education for the prevention of in-hospital falls in older patients – results of a randomized controlled trial

**Abstract:**

Falls in older hospital patients are a serious problem and there have been limited trials aimed at preventing falls in this population. The aim of this trial (n=1206) was to investigate the effect of providing individual patient education on falls and falls related injury in hospital. Preliminary results of the trial will be presented.

**Presenter: Karen Clark-Burg, Annie Das, Selma Alliex**

**Title:** Videoing as a teaching and learning tool in an undergraduate nursing curriculum

**Abstract:**

The School of Nursing at The University of Notre Dame, Fremantle was recently included in an innovative research grant from the Australian Learning and Teaching Council (ALTC) involving the use of video as a teaching and learning tool.

It was decided that two 1<sup>st</sup> year nursing skills would be piloted. The lecturer was videoed demonstrating a particular skill and a copy of the video was posted on the blackboard learning environment for all students to access throughout the semester. Students were videoed as they practiced the nursing skills in the laboratories and this video footage was given to them to critically analyse and reflect by way of coding into pre-determined categories and comparing with the video demonstration on blackboard. For the final practical assessment, students in the study were assessed using the video method and results were compared with the remainder of the cohort whom were assessed in the traditional way.

This innovative method of teaching and learning has been integrated in all nursing skills units throughout the undergraduate nursing curriculum. This paper will discuss strategies to incorporate the use of video, the pros and cons of the use of videoing along with recommendations for the future.

**Presenter:** Philippa Gavranich

**Title:** Women in Leadership Roles: Working Through 'The Change'

**Abstract:**

The majority of Australian women will experience perimenopausal symptoms with more than 25% experiencing severe symptoms (Davis, 2003). Many of these symptoms have the potential to affect work performance including hot flushes and night sweats which are experienced by 85% of perimenopausal women (Baldo, Schneider, & Slyter, 2003). This research sought to explore the perceived impact of perimenopausal symptoms on women in leadership roles; how they managed symptoms, the factors that influenced their decisions regarding treatment options and their recommendations for women in similar circumstances. Information was gathered through in-depth, semi-structured interviews with women volunteers. An *interpretative phenomenological analysis* (IPA) was employed to identify salient themes from the transcribed narrative. Four *Superordinate Themes* which reflect the experiences and concerns raised by the participants were identified:

1. Distraction, disruption, discomfort and distress
2. Soldiering on or taking control
3. Keeping up appearances
4. It's lonely at the top

Participants reported that contending with the demands associated with a leadership role while experiencing perimenopausal symptoms was at times distracting and for some, a source of physical and emotional distress which had the capacity to undermine confidence and work performance. Many reported feeling isolated because of the demands and status associated with their work. This isolation often restricted opportunities to gather and share information about symptoms with other women. The findings provide valuable insight into the experiences of a unique group of women. These insights will inform further research aimed at identifying interventions and strategies that may raise awareness among women in leadership roles about the onset, nature and management of perimenopausal symptoms.

**Presenter: Benedict Wand**

**Title:** Tactile Thresholds are Preserved yet Cortical Sensory Function is Impaired in Chronic Non-Specific Low Back Pain Patients

**Abstract:**

Introduction

A substantial amount of evidence points to an alteration in brain structure and function patients with chronic non-specific low back pain (CNSLBP) [1-6]. One interpretation of these findings is that the observed brain changes may represent a disruption of the brain's representations of the body part and the resultant body perception disturbance may underpin this clinical problem. The current study aimed to investigate sensory dysfunction in CNSLBP. Specifically we aimed to distinguish cortically mediated sensory dysfunction from peripheral dysfunction by comparing simple tactile thresholds with more complex cortically mediated sensory tests

Methods

We investigated tactile thresholds (TTH), two point discrimination (TPD) and graphaesthesia over the lumbar spine of 19 CLBP patients and 19 age and sex matched healthy controls as a way of investigating whether CLBP patients present with a perceptual disturbance of their lumbar spine. Differences in performance of the sensory tests was explored using the Mann Whitney U Test and one-way between groups multivariate analysis of variance.

Results

We found no difference in tactile threshold between the two groups ( $P=.0.751$ ). There was a statistically significant difference between controls and LBP for TPD:  $F(1,36)=10.15$ ,  $p=.003$  and letter error rate:  $F(1, 36)=6.54$   $p=0.015$ . The data indicate that LBP patients had a larger lumbar TPD distance and a greater letter recognition error rate.

Discussion

Both TPD and graphaesthesia are dependant on the integrity of the primary sensory cortex [7]. These data support existing findings of perceptual abnormality in chronic back pain [8] and the preservation of tactile thresholds is suggestive of cortical rather than peripheral sensory dysfunction. Amelioration of these abnormalities may present a target for therapeutic intervention.

Keywords

Chronic low back pain; cortex ; graphaesthesia; two-point discrimination