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Some recent New Zealand research which contributes to evidence-based physiotherapy.

Physiotherapy Research at the University of Otago

- The effects of water-based exercise to improve falls risk and physical function in older adults with hip or knee osteoarthritis: a randomised controlled trial.
- Competency, preparedness to practise, and integration of knowledge in physiotherapy students
- Activity levels and low back pain in the above-knee amputee population.
- DMA Clinical Pilates Directional Bias Assessment: Reliability and Predictive Validity
- The evolving role of mobility scooters in keeping New Zealanders on the move.

The effects of water-based exercise to improve falls risk and physical function in older adults with lower extremity osteoarthritis: a randomised controlled trial. (Researcher 1)

Approximately 30% of older adults (>65 years) will experience at least one fall a year. For older persons with osteoarthritis, land-based fall prevention exercises may be unsuitable as these could aggravate joint pain; exercise in water may be a suitable alternative. With a randomised controlled trial, we investigated the efficacy of a water-based, balance-focused exercise programme to reduce falls risk in 39 older adults with hip or knee osteoarthritis. The water-based intervention was twice a week for 12 weeks. The control group took part in a time-matched computer training programme. No statistically significant between-group differences were found for any of the outcomes measured, including the Physiological Profile Assessment (PPA). The Step Test improved significantly in both groups as did two PPA items (reaction time and contrast sensitivity) in the control group, resulting in a lower falls risk score. An interesting question from these findings is whether gaining computer skills and going out into the community twice-weekly was an adequate stimulus to reduce falls risk in people with osteoarthritis.

Competency, preparedness to practise, and integration of knowledge in physiotherapy students. (Researcher 2)

This research investigated the effect of the curriculum at Otago University School of Physiotherapy on student 1) clinical competency 2) preparedness to practise 3) perceptions of the integration of knowledge, in the final year of undergraduate study (2009 cohort). Data were collected from a variety of sources: student’s clinical assessment grades; preparedness to practise on-line surveys; student and clinical educator focus groups to explore how students integrate knowledge. Overall, students were found to be competent (grade average B) across physiotherapy disciplines. Students identified that they were moderately prepared for clinical practice in the final year of study. The qualitative data revealed three main themes: linking theory to practice, theory relevance, and ‘thinking’ like a physiotherapist. The importance of clinical experience in linking theory into practice, and that the final year required a behaviour change for students to evolve into ‘thinking’ like a physiotherapist, were expressed by both students and clinical educators. Student experiences also revealed that seeing the relevance of the content earlier in the curriculum impacted on their understanding in the final year.

The study was supported by a grant from the Physiotherapy New Zealand Scholarship Trust Fund.
Activity levels and low back pain in the above-knee amputee population.  (Researcher 3)

A national sample from the New Zealand Artificial Limb Board database (n=322) was surveyed using a questionnaire to investigate Low Back Pain (LBP) prevalence and the relationship between physical activity levels and LBP of persons with traumatic trans-femoral amputation. A 55% response rate was achieved from the survey and results showed that 64.1% reported LBP and 39.1% of this group reported restricted activity due to their pain. There was no relationship between the physical activity levels of persons with and without LBP. Despite a prevalence of approximately twice that of the normal population, trans-femoral amputees do not let their LBP restrict their activities. However, future studies investigating LBP coping strategies might further elucidate the relationship between physical activity and LBP in this high-risk population.

The study was supported by a grant from the New Zealand Artificial Limb Board

DMA Clinical Pilates Directional Bias Assessment: reliability and predictive validity  (Researcher 4)

It typically takes 4-6 weeks of therapeutic exercise to restore dynamic postural stability and muscle function following leg injury. We tested a DMA Clinical Pilates method that has been suggested to yield immediate changes (within one session). Central is an assessment for a “directional bias” to identify dynamic postural stability deficits. Patients are rehabilitated with directionally-biased exercises matched to their deficit, referred to as “matched bias” exercises. Our study tested the assessment reliability and its validity to predict outcomes of matched versus unmatched exercise. Results found: the inter-rater reliability of the directional bias assessment was high and its ability to predict the outcome of performing matched bias exercise was valid. Immediate improvements in dynamic postural stability and height they could hop were demonstrated, and more consistently, following matched bias exercise. Conversely, unmatched bias exercise was detrimental. The 33 participants in the crossover trial had recovered from more than one lower limb injury on the same side more than 6 weeks previously.

Musculoskeletal injury in military personnel: The predictive ability of the Functional Movement Screen and Y-Balance Test.  (Researcher 5)

The benefits of exercise and physical activity are well known and include improved fitness and reduced morbidity. However, musculoskeletal injuries can frequently occur as a consequence of participation in sport, exercise and physical activity, and affect performance and participation. There are many tools that have been developed for screening of physical activity participants; however two recent tools, the Functional Movement Screen (FMS) and the Y-Balance Test (YBT) are gaining popularity both in North America and globally as effective predictors of musculoskeletal injury. This study is determining if fundamental movement characteristics, as determined by the FMS and YBT, have the ability to predict injury in a large cohort of military recruits. In excess of 200 active New Zealand Defence Force (NZDF) personnel from Land force-3 have been screened between deployments in 2010/11 and are currently being monitored for injury, both nationally and internationally.

The evolving role of mobility scooters in keeping New Zealanders on the move.  (Researcher 6)

The use of mobility scooters is a growing phenomenon in New Zealand’s ageing population. Mobility scooters can enhance the individual’s lifestyle and facilitate community participation. However, they also have the potential to reduce the level of physical activity necessary for normal health and mobility. In order to gain a better understanding of how and why scooters are purchased, how they are used in daily activities and their contribution to the rider’s quality of life, we have conducted a series of focus groups within the Otago region. The results have been supplemented with information obtained from semi-structured interviews of a range of key informants associated with the mobility scooter industry and related services. Collectively this information is being used to develop a survey questionnaire to document a national picture of how persons aged 65+ years use their scooters. This project will provide foundation knowledge on user demographics, patterns of scooter use, and community participation.

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