MEETING ABSTRACTS

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A comparative study on the effectiveness of faradism under pressure versus intermittent pneumatic compression in the treatment of post-operative swelling due to ACL reconstruction: A assessor-blinded randomized controlled trial (phases I and II)

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Background and purpose: Intermittent pneumatic compression (IPC) is a commonly used clinical intervention for the treatment of swelling, but faradism under pressure (FUP) has also become common in more clinics due to its availability and low cost. The purpose of this study is to compare the effects of FUP versus IPC in patients 18-35 years old, after ACL reconstruction surgery on outcomes of acute swelling, pain, and knee range of motion.

Methods: This is an assessor-blinded, randomized controlled trial. Seventeen participants aged 18-25 who underwent ACL reconstruction and presented with postoperative swelling were recruited from Moro Lorenzo Sports Clinic and randomly assigned to the experimental group: FUP (n=9) and the control group: IPC (n=8). Treatment was given for 5 consecutive days with pre-tests and post-tests taken each day. Outcome measures utilized were visual analog scale (VAS), range of motion (ROM), and limb girth measurement. Between-groups and within-groups analyses were performed.

Results: IPC showed significant improvements in swelling after 5 days of treatment, on all areas of measurement (95% CI: above MTP: Z = 0.65, 3.10; MTP = 0.26, 1.99; below MTP = 0.47, 2.21). On the other hand, FUP shown significant changes in pain (95% CI: 0.33, 2.78), knee flexion (95% CI: 16.19, 62.26) and knee extension (95% CI: -6.14, -0.75) after 5 days of treatment. Between-group analyses did not reveal statistically significant differences between FUP and IPC.

Conclusion: IPC seems to produce significant improvements in swelling in patients with post-ACL reconstruction while FUP seems to contribute to improvements of pain and knee ROM after 5 days of treatment. However, this study did not find enough evidence to prove a statistically significant difference in effects between these interventions and further studies may need to be done utilizing a larger sample size.

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Prevalence rates of foot complications in subacute inpatient rehabilitation facilities. A cross-sectional prevalence study

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Background and purpose: Australian subacute rehabilitation facilities face significant challenges from the ageing population with increased burden of chronic disease and multiple co-morbidities. Foot complications are a negative consequence of many chronic diseases and their management consumes significant inpatient hospital resources, including the subacute environment. Acute foot ulceration is the result of ‘high risk’ foot complications, such as peripheral neuropathy, peripheral vascular disease, and orthopaedic deformity. With the rapid expansion of subacute services and potential health-related costs of managing chronic disease related foot complications it is an imperative to investigate the prevalence of foot complications in this population. This paper aims to determine the prevalence of foot complications in the subacute rehabilitation population.

Methods: Eighty-five participants (mean age = 80 ± 9 years, 60% female) admitted over two 4 week periods, to a large Australian subacute rehabilitation facility, underwent a short non-invasive foot examination by a Podiatrist. The standard Queensland Health High Risk Foot Form collects data on age, medical co-morbidity and type of foot complication. Descriptive statistics, multivariate logistic regression and odds ratios were used to determine the prevalence of foot complications, and the associations between foot complication and explanatory variables respectively.

Results: Results revealed that 56.5% of participants had at least one foot complication identified. One in three participants had two or more foot risk factors leading to them being identified as having a ‘High Risk’ foot, and one in 10 participants had an acute foot ulceration.

Conclusion: This study highlights the significance of foot complications in the subacute population. Given the high rates of medical co-morbidities, foot risk factors need to be assessed and managed by appropriately trained staff in the subacute setting to optimise health outcomes and prevent acute re-admission. This potentially forecasts the importance of a broader representation within the multidisciplinary team outside of those traditionally seen in subacute rehabilitation.

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A pilot study to investigate the immediate effects of mulligan’s technique and butler’s neural mobilisation on pain and straight leg raise in low back pain subjects

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Background: Mulligan’s bent leg raise technique (BLR) and Butler’s neural mobilisation (nerve gliding/ nerve stretch) technique (BNM) are commonly used by physiotherapists with the intention to improve pain and limited straight leg raise (SLR) in patients with low back pain (LBP). But, there is limited evidence underlying their use. SLR was considered limited if the range of motion of SLR of the affected leg was 20 degrees less when compared to the unaffected leg, and if the limitation was primarily due to pain. Limited SLR and associated pain is a very common finding in patients with posterolateral disc prolapse. Therefore, this study was conducted to investigate the effectiveness of both these techniques in improving pain and limited SLR.
Methods: This experimental study was approved by the institutional ethics committee. LBP subjects referred for physiotherapy treatment were recruited. 23 volunteers fulfilling the inclusion criteria were randomly assigned to either of the two treatment groups; BLR [n=13] and BNM [n=10]. The two groups received treatment from two different therapists. The outcomes measured were pain severity using visual analogue scale (VAS) and SLR range of motion (SROM) using goniometer performed by an independent observer blinded to the two groups. The therapists were blinded to both the outcome measures. Within group and between group comparisons of outcome measures was analysed using paired t-test and unpaired t-test respectively. The level of significance was set at p value < 0.05.

Results: The two groups were similar in terms of age [BLR: 35.3±7.2 years; BNM: 38.8±9.0 years] and duration of LBP [BLR: 20.6±3.4 days; BNM: 18.6±5.6 days]. Also, at the beginning of study, the two groups were not significantly different in terms of VAS scores [BLR: 4.1±1.4 mm; BNM: 3.8±1.28 mm] or ROM [BLR: 42.46±5.67; BNM: 44.09±7.92]. Both BLR and BNM resulted in statistically significant improvement in both VAS scores [BLR: 2.7±0.7 mm; BNM: 2.8±0.89 mm] and ROM [BLR: 58.00±6.70; BNM: 57.90±7.64]. However, between groups comparison did not show any significant difference in treatment effect.

Conclusion: Both the BLR and BNM techniques produce significant immediate improvement in both pain and SROM in subjects with low back pain. Further research to investigate their long term efficacy is warranted, with emphasis on its effect on functional limitations/disability.

Methods: 28 chronic stroke patients (>1 year after onset) and 27 age-matched healthy individuals participated in the study. Dual-energy X-ray absorptiometry (DXA) was used to evaluate forearm areal bone mineral density (aBMD). Peripheral quantitative computed tomography (pQCT) was used to evaluate volumetric BMD, bone geometry and bone strength index (BSI) of radius diaphysis. Other variables of interest (grip strength, spasticity, oxygen consumption rate during Six Minute Walk Test) were also assessed. Each subject was assessed again one year after the initial assessment. Two-way repeated measure ANOVA was used to compare bone changes across groups. Pearson’s correlation coefficient and Spearman’s rho were used to investigate the associations of bone parameters with other variables.

Results: The one-year decline in forearm aBMD (F=9.90, p=0.003), and cortical area (F=4.46, p=0.04) and cortical thickness (F=5.61, p=0.023) of the radius diaphysis were found significantly greater on the paretic side of chronic stroke patients than the non-dominant side of the controls. On the paretic side of the stroke group, higher oxygen consumption during Six Minute Walk Test and higher body mass index (BMI) measured in the initial assessment were found to be significantly correlated with less reduction in forearm aBMD (r=0.48, p=0.05) and BSI of the radius diaphysis (r=0.47, p=0.05) respectively during the 1-year follow-up period.

Conclusion: The radius diaphysis on the paretic side of chronic stroke patients sustained more decline in bone density and geometric properties than the non-dominant side among age-matched healthy individuals. Better cardiorespiratory fitness and aerobic capacity were associated with less subsequent deterioration in bone health indicators. Further study is required to investigate the effects of cardiorespiratory interventions on upper limb bone health in chronic stroke patients.