The purpose of this prospective randomised cross-over study was to measure peak expiratory flow rates during manual hyperinflation and to determine if the addition of a head-down tilt to physiotherapy treatment increased sputum production in patients who are intubated and ventilated. Twenty patients who were intubated, ventilated and haemodynamically stable were randomised to a sequence of physiotherapy treatment in a flat side-lying or a head-down tilt position. Peak expiratory flow rates were measured for each breath during manual hyperinflation using a Vitalograph peak flow meter. Sputum wet weight was collected for each treatment position and static pulmonary compliance was measured before and immediately following physiotherapy treatment. There was a significant increase in peak expiratory flow ($p < 0.001$) and sputum production ($p = 0.008$) in the head-down tilt position. The mean difference and 95% confidence intervals for expiratory flow were 0.17 (0.15 to 0.19) l/sec and for the wet weight of sputum 1.97 (0.84 to 3.10) g. The peak expiratory flow rate was sufficient to produce annular flow in both flat side-lying (1.97 ± 0.09) l/sec and in the head-down tilt position (2.14 ± 0.08) l/sec. Static pulmonary compliance improved significantly following physiotherapy treatment ($p = 0.003$). The mean difference and 95% confidence intervals pre- and post-treatment for static pulmonary compliance were 5.18 (2.14 to 8.22) ml/cmH2O. The results suggest that addition of a head-down tilt to physiotherapy treatment, including manual hyperinflation, in patients who are intubated and ventilated, increases sputum production and improves peak expiratory flow.

Physiotherapists commonly use post-treatment changes in a patient’s pain intensity and range of motion to guide treatment selection and predict possible longer-term outcomes. This study tested the validity of this practice by evaluating the predictive value of within-session changes in pain intensity and range of motion in 53 patients with low back pain. Pain intensity and range of motion measurements of spinal flexion, extension, lateral flexion, and straight-leg-raise were taken by the patient’s therapist before and after one treatment session, and were repeated by a blinded therapist at the beginning of the patient’s subsequent treatment session. Regression analysis revealed that the strength of association between within-session and between-session changes ranged from $r = 0.35$ to $r = 0.80$ for range of motion measurements, and from $r = 0.24$ to $r = 0.47$ for pain intensity. Odds ratios for pain and range of motion ranged from 3.5 (95% CI 0.9 to 14.6) to 37.0 (95% CI 4.1 to 330), indicating greater odds of improving between-session if improvement was obtained within-session. These results provide preliminary support for the practice of using within-session changes in pain intensity and range of motion to guide treatment selection when treating impairments in patients with low back pain.

A systematic review of randomised controlled trials was performed to evaluate the effectiveness of pre-operative physiotherapy programmes on outcome following lower limb joint replacement surgery. A search of relevant key terms was used to find suitable trials, with five papers meeting the inclusion criteria for the review. The methodological quality of the
trials was rated using the PEDro scale. Estimates of the size of treatment effects were calculated for each outcome in each trial, with 95% confidence intervals calculated where sufficient data were provided. Of the three trials pertaining to total knee replacement, only very small mean differences were found between control and intervention groups for all of the outcome measures. Where confidence intervals could be calculated, these showed no clinically important differences between the groups. Two papers (one study) pertaining to total hip replacements found significant improvements in WOMAC scores, hip strength and range of movement, walking distance, cadence, and gait velocity for the intervention group, compared to a control group. Estimates of treatment effect sizes for these outcomes were larger than for the total knee replacement studies, with confidence intervals showing potentially clinically important differences between group means. However, as the intervention group also received an additional intensive post-operative physiotherapy program, these results cannot be attributed solely to the pre-operative program. This systematic review shows that pre-operative physiotherapy programmes are not effective in improving outcome after total knee replacement but their effect on outcome from total hip replacement cannot be adequately determined.


This paper discusses the rationale for and content of a newly developed treatment for shoulder complaints, and describes a randomised study which is currently being conducted to test effectiveness of the treatment. In current practice, approximately 50% of all patients with shoulder complaints mention limitations in the performance of daily activities and persisting pain after six months. To improve the functional ability of patients with chronic shoulder complaints, despite their pain, we have developed an operant behavioural and time-contingent graded exercise therapy programme for use in a primary care setting. We present the theory and conceptual model underlying this programme, report on its development and content, and describe the design of a randomised clinical trial to evaluate the programme’s effectiveness and cost-effectiveness. One hundred and thirty-two patients who suffer from shoulder complaints for at least 3 months are being recruited in general practice. After inclusion in the study, patients are allocated randomly to the graded exercise therapy programme or to usual care. Questionnaires will be used to measure factors like severity of the main complaint, functional limitations of daily activities, perceived recovery, global health status, shoulder pain, generic health-related quality of life, and costs. These factors will be assessed at baseline, during treatment (6 weeks), and after treatment (12, 26, and 52 weeks).


Reduction of exercise capacity in patients with ankylosing spondylitis is associated with skeletal muscle performance. The contribution of respiratory muscle performance is questionable. This pilot study was designed to investigate the relationship between respiratory muscle performance and exercise capacity in ankylosing spondylitis. Subjects were 12 patients with ankylosing spondylitis. Measurements of maximal respiratory pressures and inspiratory muscle endurance were performed and correlated with maximal exercise capacity. Lung function and chest wall expansion were reduced on average. Maximal inspiratory and expiratory pressures were reduced to 82 ± 20% of predicted values and 75 ± 22% of predicted values respectively. On average there was no reduction in inspiratory muscle endurance which remained at 103 ± 36% of predicted values. No overall reduction was found in maximal exercise capacity, either expressed as maximal workload or as peak oxygen uptake; however, a wide range was found. Maximal workload and peak oxygen
uptake correlated significantly with maximal respiratory pressures and respiratory muscle endurance. The best regression model for explaining the total variation of maximal workload and peak oxygen uptake selected maximal inspiratory pressures as the independent variable (r^2 = 59.6%, p = 0.003 and r^2 = 62.5%, p = 0.05 respectively.) These data suggest respiratory pressure and respiratory muscle endurance, in particular maximal inspiratory pressure, may be determinants of exercise capacity in patients with ankylosing spondylitis.


Operator performance during the expiratory phase of manual hyperinflation appears to vary between physiotherapists for Mapleson-B or C circuits. Some physiotherapists release the valve but maintain compression of the bag, whereas others release both the valve and the bag. The effect of this difference on peak expiratory flow rate (PEFR) has not been reported. The aim of this study was to document the effect of maintaining bag compression during expiration on PEFR and inspiratory to expiratory flow rate ratio (I:E). Six physiotherapists with experience using manual hyperinflation participated. A within-subjects repeated measures design was used. Subjects performed manual hyperinflation using a Mapleson-C circuit with ‘rapid release’, releasing the valve only, or releasing both the bag and the valve, during expiration in a test lung model. Inspiratory time was controlled using a metronome and flows were measured with a heated pneumotachometer. Maintaining bag compression significantly reduced PEFR (1.54 (0.08) vs 2.00 (0.07) l/sec, p = 0.008) and increased I:E flow rate ratio (0.65 (0.04) vs 0.50 (0.02), p = 0.02) for the Mapleson-C circuit at a 1.4 litre target volume. There were no significant differences for these measures between techniques when subjects emptied the bag. The effect needs to be confirmed in the clinical setting.


Although tilt tables are used by physiotherapists to reintroduce patients to the vertical position, no quantitative evidence is available regarding their use within intensive care units (ICUs) of Australian hospitals. The purpose of this study was to evaluate the use of tilt tables in physiotherapy management of patients in ICUs across Australia. Ninety-nine physiotherapists working in Australian public ICUs were contacted via mail and asked to complete a questionnaire regarding their use of tilt tables in practice. Reasons for the use of the tilt table, contraindications, commonly used adjuncts, monitoring, and outcome measures were also investigated. Eighty-six questionnaires were returned (87% response). The tilt table was used by 58 physiotherapists (67.4%). The most common reasons for inclusion of tilt table treatment were to: facilitate weight bearing (94.8% of those who tilt); prevent muscle contractures (86%); improve lower limb strength (81%); and increase arousal (70%). The tilt table was most frequently applied to patients with neurological conditions (63.8%) and during long-term ICU stay (43.1%). Techniques often combined with tilt table treatment included upper limb exercises (93.1%) and breathing exercises (86.2%). Standing with assistance of the tilt table is used by the majority of physiotherapists working in Australian ICUs. A moderate level of agreement is demonstrated by physiotherapists regarding indications to commence tilt table treatment and adjunct modalities combined with standing with assistance of the tilt table.

We hypothesised that applying the active cycle of breathing techniques (ACBT) in patients with acute hypercapnic respiratory failure undergoing non-invasive ventilation would improve patient outcome. Thirty-four patients were randomised so that 17 patients with acute hypercapnic respiratory failure received the ACBT and non-invasive ventilation (ACBT group), and 17 patients received noninvasive ventilation alone (control group). The primary outcome measure was length of time requiring non-invasive ventilation, and secondary outcome measures were change in acute physiology score, change in arterial blood gas values, total duration of noninvasive ventilation, and length of stay in the intensive care unit. Although not significant, there was a greater decrease in arterial carbon dioxide pressure in the ACBT group compared to the control group (-21.41 mmHg vs -17.45 mmHg, p = 0.27). Total duration of ventilation tended to be shorter in the ACBT group than in the control group (64.9 hours vs 84.1 hours, p = 0.15). Length of time in need of non-invasive ventilation was significantly lower in the ACBT group than in the control group (5.0 days vs 6.7 days, p = 0.03). There was no significant difference in length of stay in the intensive care unit between the two groups (8.0 vs 9.4 days, p = 0.31). The use of ACBT may have positive effects in the treatment of patients with acute hypercapnic respiratory failure, resulting in a shorter length of time requiring non-invasive ventilation.


The optimal form of rehabilitation after rotator cuff repair has yet to be determined. A randomised clinical trial was undertaken to compare outcomes for two forms of rehabilitation for this condition: individualised supervised physiotherapy treatment, and a standardised unsupervised home exercise regime. Fifty-eight volunteers with all sizes of operatively repaired rotator cuff tears were allocated randomly to one of the two treatment groups. All subjects received a standardised home exercise regime. Subjects who were randomised to the physiotherapy group received additional individualised treatment. Independent, blinded assessments of range of motion, muscle force and functional outcome measures were performed pre-operatively, and at six, 12 and 24 weeks postoperation. At six, 12 and 24 weeks post-operation, comparable outcomes were demonstrated for both rehabilitation groups. By 24 weeks post-operation, most subjects demonstrated outcomes that were consistent with a favourable recovery, regardless of rehabilitation mode. On the basis of these results, outcomes for subjects allocated to individualised physiotherapy treatment after rotator cuff repair are no better than for subjects allocated to a standardised home exercise regime.


Most patients referred to physiotherapy with low back pain are without a precise medical diagnosis. Identification of subgroups of non-specific low back pain patients may improve clinical outcomes and research efficiency. A pathoanatomic classification system has been developed, classifying patients with non-specific low back pain into 12 different syndromes and three subcategories based on history and physical examination. The purpose of this study was to estimate the inter-tester reliability of clinical tests used as criteria for classifying patients. Ninety patients with chronic low back pain were each examined by two physiotherapists. A total of four physiotherapists conducted the assessments. Examination findings were recorded independently by the two examiners. Percentage of agreement and kappa coefficients were calculated for each category. The overall rate of agreement was 72%
and the kappa coefficient was 0.62 for the mutually exclusive syndromes in the classification system. Agreement rates for each of the syndromes ranged from 74% to 100% and kappa coefficients ranged from 0.44 to 1.00. The findings suggest the inter-tester reliability of the system is acceptable. The relatively modest level of total agreement (39%) for the system as a whole might indicate that the utility of the system for general screening purposes is limited, compared with the utility in identification of particular syndromes. Due to low prevalence of positive findings in some of the syndromes, future work should focus on testing reliability on a larger sample of patients, and testing of validity and feasibility of the system.


The aim of this study was to investigate the effects of mobilisation on respiratory and haemodynamic variables in the intubated, ventilated abdominal surgical patient. Mobilisation was defined as the progression of activity from supine, to sitting over the edge of the bed, standing, walking on the spot for one minute, sitting out of bed initially, and sitting out of bed for 20 minutes. Seventeen patients with age (mean ± SD) 71.4 ± 7.1 years satisfied inclusion criteria. Respiratory and haemodynamic parameters were measured in each of the above positions and compared with supine. In the 15 subjects who completed the protocol, standing resulted in significant increases in minute ventilation (VE) from 15.1 ± 3.1 l/min in supine to 21.3 ± 3.6 l/min in standing (p < 0.001). The increase in VE in standing was achieved by significant increases in tidal volume (VT) from 712.7 ± 172.8 ml to 883.4 ± 196.3 ml (p = 0.008) and in respiratory rate (fR) from 21.4 ± 5.0 breaths/min to 24.9 ± 4.5 breaths/min (p = 0.03). No further increases were observed in these parameters beyond standing when activity was progressed to walking on the spot for one minute. When supine values were compared with walking on the spot for one minute, inspiratory flow rates (VT/TI) increased significantly from 683 ± 131.8 ml/sec to 985.1 ± 162.3 ml/sec (p = 0.001) with significant increases in rib cage displacement (p = 0.001) and no significant increase in abdominal displacement (p = 0.23). Arterial blood gases displayed no improvements following mobilisation. Changes in VT, fR, and VE were largely due to positional changes when moving from supine to standing.


Child abuse is an international phenomenon occurring in all socioeconomic groups. Reports of child abuse continue to increase and many professionals are likely to see abused children and may be the first contact for an abused child. In addition, many health professionals and others are mandated in some Australian states to report suspected child abuse. However, the literature addressing the roles of Australian health professionals in child protection is limited. This paper informs Australian physiotherapists about child protection legislation, types of abuse, suspicion on reasonable grounds, and responding to a situation of suspected child abuse.


This case report describes a strategy for assessing the suitability of orthotic prescription for individual patients with lower limb overuse injuries. The case concerns a 32 year old male soccer player with a two-year history of Achilles tendinopathy. A functional assessment performed before, during, and after a trial period of anti-pronation taping showed that taping
reduced symptoms markedly and resulted in a 10-fold increase in pain-free jogging distance. This was interpreted as an indication for favourable orthotic intervention. Subsequently, orthotic intervention was associated with a similar reduction in symptoms and improvement in function. This case study illustrates how a trial period of anti-pronation taping could assist therapists to make decisions about prescription of orthoses for lower limb overuse injuries.


The purpose of this study was to determine the diagnostic accuracy of a neurological assessment performed before discharge from the nursery to predict cerebral palsy at three years of age in preterm infants. Infants born < 31 weeks gestation between 1992 and 1996 were assessed using the Lacey Assessment of the Preterm Infant (LAPI) prior to discharge. Infants were classified as having no abnormality, possible abnormality, or definite abnormality. At three years of age, the infants had a neurological examination. Infants were stratified into those assessed at ≥ 33 weeks postmenstrual age and those assessed at least once > 33 weeks postmenstrual age. Of the 203 infants, 36 were diagnosed with cerebral palsy at three years. Seven were assessed ≥ 33 postmenstrual age and 29 were assessed > 33 weeks postmenstrual age. For infants assessed > 33 weeks and classified as having any abnormality (possible or definite), the LAPI had 86% sensitivity, 83% specificity, and 96% negative predictive value for subsequent cerebral palsy. The LAPI was less accurate when applied to infants < 33 weeks postmenstrual age. The LAPI is an accurate diagnostic tool in the preterm period for the prediction of normal motor development or cerebral palsy at three years of age. This information may be used to target intervention.

Key words: Cerebral Palsy, Infant Preterm, Sensitivity and Specificity, Neurological Assessment, Physical Therapy (Specialty)


This study was designed to compare the efficacy of ultrasound and laser treatment for mild to moderate idiopathic carpal tunnel syndrome. Ninety hands in 50 consecutive patients with carpal tunnel syndrome confirmed by electromyography were allocated randomly in two experimental groups. One group received ultrasound therapy and the other group received low level laser therapy. Ultrasound treatment (1 MHz, 1.0 W/cm², pulse 1:4, 15 min/session) and low level laser therapy (9 joules, 830 nm infrared laser at five points) were applied to the carpal tunnel for 15 daily treatment sessions (5 sessions/week). Measurements were performed before and after treatment and at follow up four weeks later, and included pain assessment by visual analogue scale; electroneurographic measurement (motor and sensory latency, motor and sensory action potential amplitude); and pinch and grip strength. Improvement was significantly more pronounced in the ultrasound group than in low level laser therapy group for motor latency (mean difference 0.8 m/s, 95% CI -0.6 to 1.0), motor action potential amplitude (2.0 mV, 95% CI 0.9 to 3.1), finger pinch strength (6.7 N, 95% CI 5.0 to 8.2), and pain relief (3.1 points on a 10-point scale, 95% CI 2.5 to 3.7). Effects were sustained in the follow-up period. Ultrasound treatment was more effective than laser therapy for treatment of carpal tunnel syndrome. Further study is needed to investigate the combination therapy effects of these treatments in carpal tunnel syndrome patients.

Key words: Carpal Tunnel Syndrome, Low Level Laser Treatment, Ultrasound Treatment

This study, which was part of a larger study on the Health Status of Older People conducted in Melbourne, Australia, aimed to identify factors that discriminate between multiple and occasional falls amongst older people living at home. It used a survey of 1000 Australians aged 65 years and over. Subjects were classified as multiple fallers (two or more falls in the past year), occasional fallers (one fall in the past year), or non-fallers. Twenty-nine percent of older people who lived at home reported falling once or more in the previous 12 months. Nearly 20% of older people fell once in the previous 12 months and just under 10% fell more than once. Occasional fallers were more likely to be women (OR 1.75, 95% CI 1.26 to 2.45), to have reported back pain (OR 1.54, 95% CI 1.10 to 2.16) and were nearly twice as likely to have more than three medical conditions compared to non-fallers (OR 1.88, 95% CI 1.22 to 2.90). Multiple fallers were also more likely to be women (OR 1.61, 95% CI 1.03 to 2.51). More multiple fallers (17%) than occasional fallers (9%) reported being very afraid of falling. Intervention strategies should take into account these differing predisposing factors for multiple and occasional falls.

Key words: Physical Therapy (Specialty), Accidental Falls, Geriatrics, Occupational Therapy


Although intervention is effective in reducing the disability associated with stroke, limited resources mean that physiotherapy services often cease by six months after stroke. The purpose of this clinical trial was to investigate the efficacy of resource-efficient physiotherapy services in improving mobility and quality of life after stroke. Twenty-six people with residual walking difficulties after stroke were randomised into an experimental or control group after discharge from physiotherapy services. The experimental group participated in a six-week, home-based mobility program. The control group participated in a six-week, home-based program of upper-limb exercises (i.e. ‘sham’ mobility exercises). Subjects met with the therapist for prescription of exercises only three times during the six weeks. Strategies used to offset potential problems associated with minimal subject-therapist interaction included videotaped instructions to encourage correct performance of exercises, modification of the environment and involvement of carers to enhance safety, and telephone contact and self-monitoring to promote compliance. Standing (Functional Reach), walking (MAS Item 5) and quality of life (SA-SIP30) were measured prior to, immediately after, and two months after intervention ceased by an assessor who was blinded to group allocation. Subjects in the experimental group demonstrated significant improvement in standing compared to the control group (p = 0.01) which was maintained two months after the cessation of intervention (p = 0.04). There was no difference between the groups in walking (p = 0.50) or quality of life (p = 0.70). The six-week, resource-efficient mobility program was effective in improving some of the mobility in people after discharge from stroke rehabilitation. The provision of resource-efficient programs is recommended wherever possible so that people affected by stroke may continue rehabilitation for longer.

Key words: Physical Therapy (Specialty); Randomized Controlled Trial; Cerebrovascular Accident; Patient Discharge


Chronic obstructive pulmonary disease (COPD) is a progressive, common and costly condition. Dyspnoea frequently limits activity and reduces health-related quality of life. In addition to impaired lung function, peripheral muscle deconditioning and respiratory muscle dysfunction also contribute to dyspnoea and reduced exercise capacity. Pulmonary rehabilitation using whole body exercise training improves peripheral muscle function and reduces dyspnoea but does not improve respiratory muscle function. Providing that adequate training intensities are utilised, specific loading of the inspiratory muscles with commercially available hand-held devices can improve inspiratory muscle strength and endurance. Several
studies have investigated the effects of inspiratory muscle training on dyspnoea in COPD subjects. Results of these studies are conflicting, most likely reflecting methodological shortcomings including insufficient training load, insensitive outcome measures, and inadequate statistical power. This paper describes the origin of dyspnoea in COPD, with particular attention given to the role of inspiratory muscle dysfunction in its genesis and its possible amelioration through inspiratory muscle training.

Key words: Physical Therapy (Specialty), COPD, Dyspnoea, Breathing Exercises

RWJG Ostelo, HCW de Vet and HJM van Beek: The architecture of scientific research
Australian Journal of Physiotherapy 50: 111–113

This anniversary issue of the Australian Journal of Physiotherapy brings the first of a new feature called Research Notes. Research Notes are short explanations of selected aspects of research methodology. Some will be simple and accessible introductions and others will deal with more complex issues. The forerunner of Research Notes was a series of articles published by leading Dutch physiotherapy researchers in Nederland Tijdschrift voor Fysiotherapie. A collection of these articles was published as a book. The editors of that book have kindly arranged for translation of selected articles for publication as Research Notes in the Australian Journal of Physiotherapy. These translated Research Notes will be supplemented by contributions from other experts in research methods. The first Research Note, by Ostelo, de Vet and van Beek, is titled ‘The architecture of scientific research.’ It provides an overview of some of the main methods used in quantitative clinical research. Subsequent Research Notes will look in more detail at specific aspects of the design and analysis of clinical research.


A systematic review of randomised clinical trials was conducted to investigate the efficacy of McKenzie therapy in the treatment of spinal pain. Databases searched included DARE, CINAHL, CENTRAL, EMBASE, MEDLINE and PEDro. To be eligible for inclusion trials had to provide treatment according to McKenzie principles and report on one of the following outcomes: pain, disability, quality of life, work status, global perceived effect, medication use, health care contacts, or recurrence. Six trials were found to be eligible, all comparing McKenzie therapy to a comparison treatment. These included NSAIDS, educational booklet, back massage and back care advice, strength training, and spinal mobilisation and general exercises. The data from five lumbar trials were pooled at short term (less than three months) and from three at intermediate (3–12 months) follow-up. At short term follow-up the McKenzie therapy provided a mean 8.6 point greater pain reduction on a 0 to 100 point scale (95% CI 3.5 to 13.7) and a 5.4 point greater reduction in disability on a 0 to 100 point scale (95% CI 2.4 to 8.4) than comparison. At intermediate follow-up, relative risk of work absence was 0.81 (0.46 to 1.44) favouring McKenzie, however the comparison treatments provided a 1.2 point greater disability reduction (95% CI -2.0 to 4.5). In the one cervical trial, McKenzie therapy provided similar benefits to an exercise program. The results of this review show that for low back pain patients McKenzie therapy does result in a greater decrease in pain and disability in the short term than other standard therapies. Making a firm conclusion on low back pain treatment effectiveness is difficult because there are insufficient data on long term effects on outcomes other than pain and disability, and no trial has yet compared McKenzie to placebo or no treatment. There are also insufficient data available on neck pain patients.

Key words: Spine; Lumbar Pain; Cervical Pain; Exercises; Meta-analysis; Physical Therapy (Specialty)

The purpose of this study was to investigate whether additional practice of either upper limb or mobility tasks improved functional outcome during inpatient stroke rehabilitation. This prospective, randomised, single blind clinical trial recruited 30 stroke subjects into either an Upper Limb or a Mobility Group. All subjects received their usual rehabilitation and an additional session of task-related practice using a circuit class format. Independent assessors, blinded to group allocation, tested all subjects. Outcome measures used were three items of the Jebsen Taylor Hand Function Test (JTHFT), two arm items of the Motor Assessment Scale (MAS), and three mobility measures, the Timed Up and Go Test (TUGT), Step Test, and Six Minute Walk Test (6MWT). Both groups improved significantly between pre- and post-tests on all of the mobility measures, however only the Upper Limb Group made a significant improvement on the JTHFT and MAS upper arm items. Following four weeks training, the Mobility Group had better locomotor ability than the Upper Limb Group (between-group differences in the 6MWT of 116.4 m, 95% CI 31.4 to 201.3 m, Step Test 2.6 repetitions, 95% CI -1.0 to 6.2 repetitions, and TUGT -7.6 sec, 95% CI -15.5 to 0.2 sec). The JTHFT dexterity scores in the Upper Limb Group were 6.5 sec (95% CI -7.4 to 20.4 sec) faster than the Mobility Group. Our findings support the use of additional task-related practice during inpatient stroke rehabilitation. The circuit class format was a practical and effective means to provide supervised additional practice that led to significant and meaningful functional gains.

Key words: Stroke, Rehabilitation, Exercise Training, Physical Therapy Techniques


In recent years there has been a reduction in the length of stay of patients undergoing total hip replacement, as hospitals have attempted to reduce costs. A reduced length of stay requires patients undergoing total hip replacement to achieve independence over increasingly shorter periods. Clinical experience indicates that many of these patients feel unready or reluctant to be discharged to home, even though they are physically capable. Information is required about psychosocial factors that may affect or delay discharge. This naturalistic study used grounded theory methodology to explore the perceptions of discharge readiness of people who had undergone a total hip replacement. Using purposive sampling, five participants were interviewed prior to discharge from an acute hospital. The analysis resulted in the emergence of three categories: ‘Confidence’, ‘Family and friends’, and ‘Feeling safe’. Participants wanted to feel safe both in the hospital and at home. Their own confidence levels and the presence of family and friends at home had a strong influence on feelings of safety. The core category and main concern of participants appeared to be about feeling safe. Participants who felt safe perceived they were ready to be discharged. Healthcare professionals can recognise and question patients about some of these factors that influence feelings of safety and readiness for discharge. Recognising concerns of patients prior to discharge will promote good patient care and discharge planning that is more acceptable to patients and carers.

Key words: Arthroplasty, Replacement, Hip; Physical Therapy (Specialty); Length of Stay; Critical Pathways; Physical Therapy


A study of the limit of active and passive knee extension in 64 healthy adults revealed a physiological quadriceps lag; that is, in most subjects the active limit of knee extension fell short of the passive limit. With the subjects seated, for the passive test the examiner lifted the heel until the relaxed knee sagged into full extension under its own weight. The active test
component comprised maximum active extension held for at least 5 sec. Videotaped reference markers on the lateral aspect of the limb were computer-analysed to derive the active and passive test positions. The active limit of knee extension was less than the passive limit by an average 2.5 degrees at the instant of maximum active knee extension, and by 2.9, 3.5, 4.0, 4.5 and 5.0 degrees 1, 2, 3, 4 and 5 sec later. At 0 and 5 sec, 16% and 41% of the subjects manifested a quadriceps lag of at least 5 degrees. There was no correlation between the magnitudes of passive knee extension and quadriceps lag. Since clinicians typically take several seconds to estimate visually or otherwise measure knee extension, account should be taken of the duration of maximum active contraction, as well as other details of test methodology, if quadriceps lag tests are to produce valid and reliable results.

Key words: Skeletal Muscle; Muscle Contraction; Muscle Weakness; Knee Pathology; Physical Therapy


The aim of this study was to seek opinions regarding the perceived advantages and disadvantages of the two main models of clinical education used in Australia. A questionnaire was designed specifically for this study and distributed to physiotherapists involved in clinical education at health units throughout Australia. There were 343 respondents (giving an approximate response rate of 74.5%). In most health units (78.4%) the model of clinical education currently used involves a number of physiotherapists sharing responsibility for the clinical education of students (SR model). Only a minority reported employing a designated clinical educator (DCE) to provide clinical education. Overall, respondents preferred the DCE model to the SR model. The perceived advantages of the DCE model included an increased time to devote to clinical education, improved consistency of supervision and decreased stress levels for staff.

Key words: Physical Therapy; Education; Clinical Competence


Prevention of falls amongst older people is a high priority in health care. The aim of this study was to evaluate the ability of the Timed Up and Go Test to predict those older people who will fall whilst admitted to an acute hospital. The medical records of 160 older patients who were admitted to the medical ward of a large regional hospital were accessed retrospectively. The Timed Up and Go Test, used in isolation, was unable to identify those patients who were likely to fall. However the co-morbidity of incontinence was identified as a falls risk factor (OR = 8.7, p = 0.001). The Timed Up and Go Test alone does not possess predictive validity for acutely unwell older patients. It is therefore recommended that it not be used to identify those people who may fall.

Key words: Physical Therapy (Specialty); Movement Disorders; Geriatric Assessment; Accidental Falls