
The main aim of this study was to monitor changes in joint flexibility over 24 hours in 25 subjects. Measurements of finger tip to floor, lumbar flexion, lumbar extension, passive straight leg raising and glenohumeral lateral rotation at 90 degrees abduction were taken every two hours during the 24 hour cycle.

The presence of circadian rhythms in flexibility were established by graphical analysis of the results. These were shown to exist in all measurements, the most strong being finger tip to floor the most weak glenohumeral lateral rotation.

The study also investigated grip strength over 24 hours and disclosed a circadian pattern in which there was a considerable fall in strength during the early hours and rapid rise after 0600 hours.

Keywords: Circadian Rhythm; Hand; Joints


To determine the nature of the postural changes in women during pregnancy, the degrees of lordosis, kyphosis and pelvic inclination in 34 pregnant women were measured progressively. The incidence of low back pain at each of the three occasions was also monitored. Analyses revealed that significant increases occurred in the lumbar and thoracic curvatures and that 82 per cent of the women experienced back pain at some stage during their pregnancy. However, no significant relationship was revealed between posture and back pain and the study did not support the frequently made assertions that back pain in pregnancy is due to an increase in lordosis.

Keywords: Backache; Lordosis; Posture; Pregnancy


Knowledge of the activities performed by managers forms the basis for management training yet little is known of tasks performed by managers in the health service. A study was performed to identify the managerial role of three physiotherapists randomly selected from eleven physiotherapists in charge of large hospital departments who had taken part in a previous study to establish a profile of perceived tasks.

Analysis revealed that the key roles of resource allocator, monitor and leader were similar to other middle managers, verbal contacts were typical of managers at all levels and clinical work caused role ambiguity.

The study indicated areas where the head physiotherapist's performance could possibly be improved together with suggestions for management training and the selection of future head physiotherapists.

Keywords: Administrative Personnel; Health Occupations; Hospital Department; Physical Therapy

The use of functional electrical stimulation (FES) in the treatment of neurological conditions has an extensive history, one that has seen great advances in recent years. Developments in this area of rehabilitation are outlined and avenues for future research and clinical study suggested. The application of FES to the neurological patient may be of considerable benefit alongside conventional facilitatory/inhibitory techniques. The physiotherapist is ideally placed to participate in studies of this modality to determine its role in clinical practice.

Keywords: Electric Stimulation Therapy; Extremities; Neurology; Rehabilitation


The interest in electro-motor stimulation as a strengthening modality has promoted many recent studies. Unfortunately, ambiguity rather than clear directions for future research and clinical practice have emerged. Problems are identified with strength testing methods and in non-standardisation training programs and stimulus parameters, suggesting the need for minimum requirements when reporting these studies. It is hoped that suggestions presented in this paper will result in more careful research designs, improved inter-study comparison and more appropriate clinical protocols.

Keywords: Electric Stimulation Therapy; Electromyography; Research


The estimation of muscle cross-sectional area (CSA) by anthropometric measurements is insensitive for objective clinical research. However computed tomography (CT) enables specific muscle imaging for accurate CSA determination. This study, involving 15 males with previous knee injuries, examined the repeatability of bilateral CT in calculating midthigh muscle densities (Houndsfield units: HU) and quadriceps atrophy. Significant differences between limbs in strength ($p < 0.0001$), CAS ($p < 0.001$) and HU ($p < 0.05$) were observed. Prior to a four week electro-motor stimulation (EMS) program, a significant correlation between force and quadriceps CAS existed which diminished over time. Neurogenic contributions to improved strength were demonstrated in the absence of increased CSA. These data suggest CAS is no a reliable predictor of strength potential in atrophic muscle. Computed tomography scanning provides an accurate, repeatable method for standardised tissue density and muscle CAS assessment.

Keywords: Anthropometry; Knee Injuries; Muscles


To develop Australian normative data for ankle invertors and evertors, 40 subjects aged between 18 and 34 years were tested using Cybex II. Issues examined were the relationships between body weight and peak torque, peak torque values of evertors/invertors at specific velocities, and body weight and endurance. Mean absolute peak torque values at specific velocities and percentage changes in endurance performance at 120 degrees/sec were established. Results showed a significant correlation between body weight and absolute peak torque. Sex had a significant effect on these values. The ration evertors/invertors had significant linearity with the test velocities.
indicating a constant ratio of these muscles irrespective of velocity. No significant relationship was found between body weight and endurance.

Keywords: Ankles; Kinetics; Psychomotor Performance


A study of the degree of accessory movements available in the sternoclavicular and acromioclavicular joints as a result of passive movement is presented. Using the common terms of hypomobility, normal and hypermobility and defining another set of terms - the pure, mixed and heterogenous triplets - findings based on a sample of 64 children indicate that the sternoclavicular joints, in comparison to the acromioclavicular joints, are decisively less mobile; are more uniformly constrained in their linear motions along the relevant anatomical planes; and exhibit a higher degree of left/right symmetry.

The significance of these findings both from the biomechanical and clinical aspect is discussed.

Keywords: Clavicle; Joints; Shoulder


A diagnostic model for understanding the group of patients described as having repetitive strain injury (RSI) is outlined.

Five diagnostic categories are suggested together with guidelines for the management of each group. The importance of viewing the patients in category 5, 'Non-Specific Regional Pain', as chronic pain patients is emphasised, together with the more detailed description of their management.

Keywords: Human Engineering; Pain; Repetitive Strain Injury


Responses to a survey comparing the background and career attitudes of incoming physiotherapy students in 1976 and 1986 indicated that female students in 1986 were more ambitious, more committed to full time careers, attached greater importance to professional recognition, pay and promotion, had more egalitarian attitudes toward women's role, had fewer romantic attachments and wanted fewer children. Responses of male students in 1986 revealed that they were older than women students, were somewhat more ambitious and conservative and were more concerned with their surrounding and freedom at work.

Keywords: Career Choice; Physical Therapy; Students


Neurological assessment at preterm age of 105 infants born at < 34 weeks gestation is discussed. The development of the asymmetrical tonic neck reflex (ATNR) was studies. There was no consistent post-menstrual age at which the seven allocated grades occurred. The diagnostic
The incidence of an imposable reflex dominating spontaneous movement was significantly different ($p < 0.001$) in the normal ($n = 89$) versus the abnormal development group ($n = 16; 13$ having spastic cerebral palsy). The inclusion of observation of the quality of movement for this reflex could provide useful information in neurological assessment of preterm infants.

**Keywords**: Cerebral Palsy; Infant, premature; Neurology; Pediatrics


Although many factors have been thought to contribute to the development of minimal cerebral dysfunction (MCD), the aetiology of the condition has not been clearly specified. The existence of MCD can be associated with behavioural, emotional or educational problems, so that control of contributing factors can have important implications for the child.

As part of a broad study of MCD carried out in the Department of Physiotherapy, University of Queensland, historical data were collected for 1,020 children who attended the MCD clinic. A comparison of the incidence of each of these factors with that in the normal population, highlighted a number of features which could bear further study.

**Keywords**: Attention Deficit Disorder; Behavior; Child Development


Diathermy is a common treatment modality used to relieve pain through localised heating. This paper briefly discusses the mechanisms through which heat is generated in tissue and the absorption characteristics of the applied electromagnetic radiation. The adverse effects of this radiation are reviewed with particular emphasis on the current exposure limits for operators and non-patients in the vicinity of diathermy devices.

The newly introduced codes of practice for the 'Safe Use of Shortwave (Radiofrequency) and Microwave Diathermy' are also discussed.

**Keywords**: Diathermy; Heat; Pain


This article describes the comprehensive assessment of the peripheral circulation. With greater understanding of haemodynamics and the mechanisms of circulatory dysfunction associated with disease and normal processes such as ageing, physical therapists are in a better position to assess and treat circulatory impairment. Since adequate circulation is fundamental to function, circulatory assessment is an integral component of any assessment regardless of whether vascular dysfunction is a primary problem. Some tests that are performed in peripheral vascular laboratories are described, as well as those tests that can easily be performed by therapists. The interpretation of the results of these tests and the implications for more rational physical therapy treatment are described.

**Keywords**: Blood Circulation; Haemodynamics; Physical Therapy

This paper looks at the development and implementation of a course, Coordinated Rehabilitation, given in the final year of an existing three year BSc curriculum in physical therapy. Preparatory developmental planning for the unit included a review of problem areas in medical curricula and the use of a content grid which facilitated integration of the course into the curriculum. Results of the grid, which gave information about the depth and sequence of material already covered, formed the basis of the course content. The objectives, structure and evaluation procedures are described, as well as the teaching strategies and learning activities selected for the students. The paper ends with a summary of students’ reactions to the course.

Keywords: Education; Physical Therapy; Students


This paper addresses the kinds of decisions physiotherapists in Victoria are making about their clients, including those presenting with referral and those presenting to the physiotherapist as first contact. A survey of private practitioners provided data concerning the incidence of primary contact practice and the source and content of medical referrals.

The incidence of primary contact practice and the management of these clients is documented and discussed with respect to the physiotherapists’ referral relationship with medical practitioners. Medical referrals are described and the physiotherapists’ compliance with treatment prescription is discussed. Implications for optimal decision-making are discussed in relation to biased choice.

Keywords: Career Choice; Clinical Protocols; Physical Therapy; Private Practice


Sixty-four children with minimal cerebral dysfunction (MCD) were studied to evaluate the effectiveness of using a developmental physiotherapy approach to treatment. Assessments of the children's performance in major areas of neurological development were made initially and after six months. In addition, a twelve months assessment allowed a determination of whether early progress was maintained after cessation of treatment.

Analyses of results revealed that physiotherapy treatment does ameliorate the neurodevelopmental programs seen in children with MCD, and that beneficial effects are well established after six months. On cessation of treatment, the children maintained the better level of functioning for a further six months in comparison to the control group. Resolution of neurological problems after a relatively brief period of physiotherapy justifies this form of intervention for children with MCD.

Keywords: Attention Deficit Disorder; Behavior; Child Development; Neurology


With an ageing Australian population, exercise programs for the elderly and frail elderly are becoming increasingly more important. It is suggested that gentle water exercise is the most appropriate form of activity for frail elderly, and therefore, a pilot program was conducted and evaluated. The results show a statistically significant positive increase on a scale of affect on a pre- and post-program questionnaire ($f = 7.35, p < 0.05$).
Participants also reported other benefits from the program. While no objective physical measurements were made, the psychological benefits of the program were identified as important factors motivating the frail elderly to commence, and maintain, regular physical activity, and ultimately be more independent in activities of daily living.

**Keywords:** Aged; Exercise; Frail Elderly; Hydrotherapy


Nineteen healthy volunteers each received six, five-minute ultrasound treatments at sonation intensities of 0.0, 0.5, 1.0, 1.5, 2.0 and 2.5 W/cm², applied along the proximal forearm segment of the ulnar nerve, over an area of approximately 4.5 times the area of the ultrasound application head. Sensory and motor nerve conduction velocities responded similarly, but not identically to ultrasound. All clinical intensities, with the exception of 0.5 W/cm² ( < 0.10), were associated with significantly increased velocities. Subcutaneous tissue temperatures were directly related to sonation intensity, although significantly increased temperatures were not observed until 1.5 W/cm² intensity was used. The effectiveness of clinical applications of ultrasound in pain relief cannot be attributed to a decrease in nerve conduction velocity of the faster conducting A-fibres, which are evaluated using standard nerve conduction techniques.

**Keywords:** Neural Conduction; Pain; Ultrasonography


The past decade in Australia has witnessed the expansion of graduate diploma programs designed for the practising clinician and it seemed timely to assess the effects of this type of post-graduate education. The objective of this study was to compare the clinical behaviour, defined as time allocation between different assessment and treatment procedures, of 16 generalist physiotherapists and 16 manipulative therapists. The results indicated some significant differences in the treatment choices and time allocation between qualifications groups, as well as some sex based differences. The implications of the finds are discussed with reference to decision making in clinical practice and the development of higher order clinical decision rules.

**Keywords:** Clinical Competence; Decision Making; Private Practice