
Eighty-six intubated infants with hyaline membrane disease were randomised to have either 0.5 ml saline, or nothing inserted down the endotracheal tube (ETT) prior to 4-hourly suctioning. The aim of the study was to determine if routine saline instillation was of benefit in maintaining ETT patency. The endpoint was (1) when the staff caring for the patient considered the secretions were increasing with the likelihood of the ETT blocking, or (2) the tube was presumed blocked and on removal was blocked. Four infants with a 2.5mm ETT the mean hour of the endpoint was 13.5 if no saline was used and this was increased to 77.6 if saline was used (p < 0.05). There was no difference with either a 3.0 or 3.5mm ETT if saline was used or not.

Keywords: Hyaline Membrane Disease; Infant, newborn; Pediatrics


Thoracic kyphosis, lumbar lordosis and pelvic tilt were measured in standing in one hundred and three adolescent females, using a specially designed inclinometer. Indices of the muscle lengths (abdominals, erector spinae, iliopsoas, gluteals, rectus femoris and hamstrings) were measured using inclinometry and goniometry and expressed as angles of joint position. Multiple regression analysis revealed that the length of erector spinae length was negatively correlated with lumbar lordosis ($r = -0.24$, $p < 0.05$). The abdominal length was positively correlated with lumbar lordosis ($r = -0.209$, $p < 0.05$), and the hamstring length was negatively correlated with lordosis ($r = -0.213$, $p < 0.05$). No muscle length was significantly related to pelvic tilt. A negative association between the degree of thoracic kyphosis and the abdominal length was found ($r = -0.245$, $p < 0.05$).

Keywords: Adolescence; Muscles; Spine


Reports of metered inaccuracy in 'therapeutic' ultrasound unit output had been made since 1962, but have tacitly been accepted, perhaps due to the universal lack of appropriate testing facilities. Factors of treatment selection subject to instrumental error include during to application, operating frequency, intensity, plus output. Metered errors in space-averaged intensity are common and are the most difficult to detect without specialised equipment which is rarely available. Couplants, essential for ultrasound transmission, can be a source of acoustic power loss if incorrectly used. Beam profiles demonstrate the rapid spatial variations in the near (Fresnel) zone, necessitating soundhead movement during treatment. Ultrasound physics must be understood, but professional integrity should demand better output testing facilities and equipment for clinical treatment.

Keywords: Physical Therapy; Ultrasonography


The use of electrical stimulation in rehabilitation is a long established procedure for the
management of a wide variety of musculoskeletal problems. This paper reviews important findings from studies on the electro-motor stimulation (EMS) of human muscles. It is particularly concerned with the results of EMS in normal subjects and in the rehabilitation setting, focusing on the stimulus parameters and training protocols used by various authors. A brief account is also given of some of the physiological effects of EMS on muscle. Attention is drawn to the urgent need for a more systematic approach to establish the optimal stimulation and training parameters. These factors must be considered when evaluating studies concerned with the efficacy of EMS-based rehabilitation programs.

Keywords: Electric Stimulation Therapy; Muscles; Rehabilitation


The efficacy of electrical muscle stimulation to restore motor function was investigated in 15 males who described prior knee surgery/injury. Persisting strength imbalance between limbs related also to reduction in cross-sectional area of the affected quadriceps, as assessed by computed tomograph of the midthigh. Subjects underwent a four-week program of daily electro-motor stimulation with repeated assessment of force production by the knee extensors, correlated with surface electromyography. Results showed no change in quadriceps cross-sectional area over the course of the study, however, significant improvements in forced production for both limbs were achieved, accompanied by alteration in motor unit activation (synchronisation) may account for the improvements, as opposed to a marked morphological contribution.

Keywords: Electric Stimulation Therapy; Electromyography; Knee Injuries; Muscles


Two studies are reported in which the elbow flexor and extensor muscle groups and the quadriceps femoris muscle group in fifteen normal female subjects were tested under voluntary and electrically stimulated conditions. The torque produced during a maximum voluntary contraction (MVC) at each of six pre-determined joint angles was compared to the torque produced in maximum tolerated contractions (MTC) by two types of electrical stimulation (conventional interferential and high voltage stimulation). Results indicated a significant difference ($p < 0.01$) between the mean torque values produced by the MVC at all angles tested compared to the MTC. At the most favourable angle for producing an MTC, a mean torque of between 45 and 55 per cent of an MVC for the elbow flexor and extensor muscles, and 65 to 74 per cent for the quadriceps femoris muscle may be expected from both the high voltage and interferential stimulators.

Keywords: Arm; Electric Stimulation Therapy; Electromyography; Leg; Muscles


A variety of electrical stimulators were used to produce a maximum tolerable contraction (MTC) in the non dominant quadriceps femoris muscle group of 14 normal female subjects. This was compared to each subject's maximum voluntary contraction (MVC). A robotic dynamometer (Kin-
Com) was used to control and measure joint angle and isometric torque production. Results indicated considerable variation in the torque produced by each subject under the different stimulation conditions. In general there were no significant differences in the force produced by each type of stimulator. However, significant differences were observed between all MTCs and MVC. Several subjects achieved a contraction under electrical stimulation in excess of their MVC.

Keywords: Electric Stimulation Therapy; Electromyography; Leg; Muscles


No acceptable scientific explanation has yet been found to account for the success of such remote treatments as acupuncture and connective tissue massage which do not conform to the recognised distribution of segmental reference. This paper is the result of clinical observations over the past seven years, revealing previously unsuspected effects from applying various treatments to the area of the sympathetic dorso-lumbar outflow for a wide variety of painful conditions. An hypothesis is offered which may account for those remote effects hitherto poorly understood.

Keywords: Alternative Medicine; Pain; Spine


Some of the claims for the effects, and mechanisms for the relief of pain of spinal origin, which have been attributed to spinal manipulative therapy are reviewed. Most of these are still to be adequately investigated experimentally; the few which have been specifically investigated have not been supported. It is hypothesised that an effective, albeit often temporary, decrease in patients' perception of pain may be a result of two ordered events. The first is inhibition of reflex muscle contraction which is maximally mediated by joint afferents with end of range passive joint movement. The second is a hysteresis effect for neural discharge in joint afferents which may be produced with maintained or repetitive end of range passive joint movement.

Keywords: Analgesia; Manipulation, orthopedic; Pain; Spine


The phenomenon of shoulder pain of cervical origin being reproduced on shoulder movement is clinically recognised. The action of the shoulder girdle muscles is a hypothetical cause of the cervical stress. This study examined the mode and degree of levator scapulae activity during shoulder activity. Electromyography and x-ray were used to measure levator scapulae activity and length. The results of the study show that levator scapulae contracts concentrically during the first 90 degrees of shoulder abduction and eccentrically during the second 90 degrees. The action of levator scapulae may be responsible for the application of force on the cervical spine during shoulder abduction. This force might cause cervical joint tissue distortion and pain if a pathological state was present.

Keywords: Cervical Vertebrae; Pain; Shoulder

Considerable concern has been expressed about the effect of respiratory therapy on intracranial pressure (ICP) in the acute stage of head injury. A study was performed to evaluate the effects of respiratory therapy techniques on the level of ICP in neurosurgical patients. Twenty subjects were studied in both the paralysed and non-paralysed states. Their intracranial pressures were monitored during periods of no treatment (the control), during the application of individual respiratory techniques and during a complete respiratory treatment. Analyses revealed that total treatment time is a crucial factor in the level of ICP. Patients with a high resting ICP are more vulnerable to large increases, prolonged manual hyperinflation raises ICP level and suctioning, in particular, causes dramatic increases in ICP.

Keywords: Head Injuries; Intracranial Pressure; Respiratory Therapy; Respiration


Thirty-two Western Australian shearers were surveyed in 1984 to determine the incidence of back problems. It was found that twenty-nine (90 per cent) of the respondents surveyed either currently had back pain, or had suffered from back pain recently. The pain was almost exclusively of an intermittent nature, suggesting a mechanical problem. Most respondents had sought medical help for their problem. Very few shearers had been seen by physiotherapists in country areas. Shearing involves bending, twisting, lifting and dragging. It is considered that the heavy physical demand and static postures during the shearing process bear a strong relation to the incidence of back pain among shearers. A recently developed device called a 'Warrie Back Aid' was used by five of the respondents, who all reported considerable symptomatic relief.

Keywords: Backache; Posture; Spine


Advance planning and preparation for retirement organisation are necessary for transitional ease, so that ageing persons are accepted as a normal and necessary community resource. Ageing people with increased leisure time perform useful voluntary work in which opportunities exist for study, activities and participation in mutual support groups. The needs of ageing people are similar to those of everyone but with some ergonomic intervention to supplement physical deficits. The interface between these needs and existing community caring service is considered. Adequate housing, accessibility to town facilities and transport, mobility and mental function, including decrements, are discussed. Recommendations are made for unification and funding of existing and desirable support services for ageing people. Inventories and check lists are included in the Appendices.

Keywords: Aged; Human Engineering; Retirement

A recent overseas study tour provided an opportunity for observation of the physiotherapist as one of a team concerned with health care in the workplace. This paper presents impressions gained during visits to some overseas institutions and industries in Scandinavia and the United Kingdom. A number of roles are possible for the physiotherapist in the workplace, but the nature of the contribution made varies between countries. The special features of physiotherapy practice in some overseas industries, the practical problems faced by the physiotherapist in implementing ergonomic principles and some of the solutions devised by physiotherapists are described.

Keywords: Health Care; Human Engineering; Physical Therapy; Work


This paper aims to describe some of the current literature on work breaks and to discuss important issues related to work breaks for keyboard operators. The relationship between work breaks and fatigue is examined, as well as the relationship between fatigue and injury.

From the present literature available, there is no evidence to support any particular work/rest regime to reduce fatigue. Physiological studies support the concept of short frequent pauses (micropauses) as being the most effective way of reducing neuromuscular fatigue. No universal regime will be suitable for every keyboard situation. Prescribed regimented work breaks have many disadvantages and should be avoided if possible in favour of work breaks that are spontaneous or designed into the work.

Keywords: Fatigue; Human Engineering; Repetitive Strain Injury; Work


Many of the keyboard and technical staff of a university with a large component of research activity, have presented to the Health Service with discomfort in the neck, shoulders and upper limb. A description of the university organisation is offered to suggest possible reasons for the high incidence. Strategies that were undertaken to confront the problem are presented. The advantages of prevention rather than intervention are yet again demonstrated.

Keywords: Fatigue; Human Engineering; Repetitive Strain Injury; Work


A review of current literature concerning the aetiology, diagnosis, role and involvement of physiotherapists in the treatment of repetitive strain injury (RSI) is presented as a basis for investigation.

To determine the modes of treatment used by physiotherapists in the management of RSI and to analyse their efficacy, a questionnaire was designed.

Forty centres were surveyed and the results are presented. Information concerning the most commonly encountered conditions, treatment given, and physiotherapists' opinions on prevention, patient education and further training in RSI management was also sought.

An attempt is made to define the role of the physiotherapist in the recognition, treatment and education aspects of over-use injury, and recommendations for further research and physiotherapy involvement are presented.
Patellofemoral pain syndrome can be a difficult condition to manage effectively. The success rate of most treatment regimes has been poor and in the long term, the condition frequently recurs. The author has developed a treatment program which has a 96 per cent success rate. Long term follow up of patients after 12 months demonstrated that all patients reviewed have remained pain free. The program involves two major components: a thorough understanding of the mechanics of the patellofemoral joint so that an adequate assessment of the patient’s lower limb can be made, and context specific training of certain muscles which contribute to patellar alignment. This training must be relatively pain free so that muscle control can be enhanced.

Keywords: Knee; Leg; Pain; Patella


An outline is given of the possible effect passive movement has on pathological conditions involving cervical nerve roots in order to cause a resolution of the condition. Techniques for the treatment of arm pain conditions such as repetitive strain injury (RSI), which are accompanied by signs of abnormal brachial plexus tension, are described. The techniques are outlined in order to give the clinician further insight into an understanding of cervical nerve root conditions and an increased range of treatment choice.

Keywords: Arm; Brachial Plexus; Pain; Repetition Strain Injury


In 1983, during the winter Saturday afternoon season at the Western Australian Matthews Netball Centre, 3108 players participated in the netball competition. The study examines the incidence of netball injuries and conditions related to these injuries. One hundred and fifty eight injuries were surveyed throughout this 14 week season. Each injured player filled in the first two pages of the questionnaire; the final page was filled in by the physiotherapist. Data was compiled and processed using the SPSS systems file including frequencies and cross tabulations. Many statistically significant results were recorded and recommendations for further investigation are included.

Keywords: Sports; Sports Medicine; Wounds and Injuries


Research in physiotherapy often necessitates measurement of the intensity of clinical pain. Numerous methods have been devised and recommended for this purpose. However, many are time consuming and unnecessarily complex both to carry out and analyse. The absolute visual analogue scale (AVAS) is a simple and adequate measure of pain intensity.

The female-dominated professions in health care are not as powerful as the male-dominated medical profession. This paper suggests that the key factor in shaping the discrepancies in pay, status and power between medicine and the female-dominated professions is gender. It is argued that physiotherapy developed as a profession for middle-class women and that family responsibilities continue to take priority over professional responsibilities for the majority of physiotherapists. Physiotherapy enjoys higher occupational prestige than social work, speech therapy, occupational therapy and nursing and it is suggested that physiotherapy has achieved this status through recruitment of women from middle and upper middle class backgrounds. The history of physiotherapy is the history of a middle class feminine profession.

Keywords: Career Choice; Physical Therapy; Women