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Recent studies on the effects of passive movement on the maintenance of nutrition and the repair of articular cartilage are related to pain relief by passive movement treatment techniques. The techniques for patients with severe intra-articular pain are described and compared with treatment techniques for patients with chronic intra-articular pain.

The suggested importance of tensional forces in the maintenance of periarticular structures forms basis for discussion of the passive treatment techniques utilised for patients with pain from ligamentous or capsular damage, or change, in both the recent and the chronic stage.

Keywords: Motion Therapy, continuous passive; Pain; Physical Therapy


Career development of 62 female physiotherapists was surveyed 5 years after graduation, in this fourth stage of a longitudinal study: 87.1 per cent were currently employed. Job satisfaction was high was work involvement. About half had specialised and the majority had attended short courses, workshops and seminars. Work pressure (too much to do and too little time) was the most frequently rated work stressor. The physiotherapists reported themselves being in good health, experiencing little role conflict and moderate satisfaction from various areas of their lives. As in previous surveys they indicated that they planned to have an average of 3 children and interrupt their careers while the children were young.

Keywords: Career Choice; Education, medical, continuing; Specialties, medical; Stress


In asthma, the bronchial muscle is hyper-irritable, making asthmatics susceptible to a wide variety of external and endogenous trigger factors normally experienced by us all. The level of hyper-irritability determines the risk of developing bronchospasm on exposure to the trigger factors. Bronchial muscle tone is in part maintained by vagal nerves. Emotional factors can act as triggers for bronchospasm through these nerves, particularly in patients with the greatest hyper-irritability. Asthma itself may arouse hostilities in parents, peers, and therapists. By definition asthma can therefore be considered psychosomatic, but because of current usage this term does not help good medical management. The complex interplay between the organic abnormality in asthma and the psychosocial environment should always be carefully considered.

Keywords: Asthma; Psychosomatic Medicine; Respiration Disorders


Facet movements in the mid-cervical spine (C2-C4) were examined on two cervical columns from preserved cadavers.

The dissected columns were clamped to allow manual movement of one vertebra on the fixed vertebra beneath. Pins were inserted to mark the position of the facets, and movement changes
recorded photographically; 160 measurements were taken from these photographs. The study showed that the facets of the free vertebra could be moved to either side in relation to the facets of the fixed vertebra. Furthermore during movements simulating lateral flexion and rotation, sideways translation of the facets was found to be part of the complex three dimensional motion. Keywords: Cervical Vertebrae; Research; Spine


Physiotherapists have an important role to play in the rehabilitation of patients with chronic obstructive pulmonary disease. Individually-tailored programs including the following components, namely education, exercise, secretion removal, breathing 'training', home programs, ventilatory muscle training, medications, support systems and counselling can provide subjective and objective benefits for these patients in the planning, implementation and evaluation of the program and to encourage them to develop self-help skills. Guidelines for designing a pulmonary rehabilitation program are outlined, and pertinent literature reviewed. Keywords: Lung Diseases; Pulmonary Heart Disease; Respiration


Normal notochordal and vascular attrition leaves weak spots in intervertebral discs through which intravertebral prolapse of disc material frequently occurs. Some varieties of prolapse cause somatic spinal pain. Asymmetrical and asynchronous growth of normal vertebral arches rotates thoracic vertebral bodies slightly to the left in infants and to the right in adolescents. Primary vascular asymmetry could cause the observed vertebral asymmetry. Luschka's joints develop in the cervical spine during childhood and give some protection against postero-lateral disc prolapse, but cervical zygapophyseal joints give little protection to the disc in sagittal plane changes from a coronal orientation in infants to a biplanar coronal and sagittal orientation in adults, which enables the joints to restrain both rotation and excessive flexion. This explains the observed pattern of stress related age changes in the joints. Keywords: Intervertebral Disc; Lumbar Vertebrae; Spine


The posterior elements of the vertebral column are innervated by branches of the dorsal rami of the spinal nerves, while the intervertebral discs and related ligaments are innervated by various branches of the ventral rami and sympathetic nervous system. A knowledge of this nerve supply forms the basis for a systematic classification of the possible sources of primary spinal pain, and the basis for several diagnostic techniques that use needles to provoke and anaesthetise putative sources of pain. In particular, the demonstration of a nerve supply to intervertebral discs vindicates the concept that these structures intrinsically may be sources of pain. Keywords: Intervertebral Disc; Ligaments; Nervous System; Spine

During standing, the electromyographic (EMG) activity of erectores spinae is minimal. However, this activity increases when an object is held in front of the body. The size of the EMG responses to this loading is dependent on both the weight of the object and the position of its centre of mass relative to the lumbosacral junction. Interpretation of EMG results becomes complex when movements of large amplitude are involved. Problematically, erectores spinae become electrically silent during trunk flexion, at a position which requires high tension in post-vertebral structures. This emphasises that EMG does not record the state of passive connective tissue tension, which is sufficient to support the vertebral column in some flexed postures.

**Keywords**: Connective Tissue; Electromyography; Spine


The articular triad of the intervertebral disc and the two synovial zygapophyseal joints at the same vertebral level, allows the spine its considerable mobility, while providing support and protection. The principal structural changes which occur to the elements of the articular triad in old age are an increase in the convexity, central height and increased swelling and fibrillation of zygapophyseal joint cartilage with expansion of joint margins by osteophytes. These changes are directly responsible for the reduction in the ranges of all lumbar movements in old age. Advanced osteoarthritis in old age is not accompanied by bony sclerosis, because of the generalised osteopenia of old age.

**Keywords**: Aged; Lumbar Vertebrae; Spine


A pilot study using four subjects was conducted to investigate a proposed method of measuring 'in vivo' lumbar zygapophyseal intracapsular pressures. The authors were interested in establishing whether a resting pressure could be measured, and to observe pressure changes within the lumbar zygapophyseal capsules with fluid injection and with a range of active and passive movements including manipulative techniques.

The results indicated that the apparatus could effectively measure intracapsular pressure changes on injection and lumbar movements. Significant pressure changes with specific localised manipulative therapy techniques were demonstrated. A resting intracapsular pressure reading was not obtainable. Further controlled studies using this approach could provide valuable anatomical and clinical knowledge for the future.

**Keywords**: Lumbar Vertebrae; Manipulation, orthopedic; Spine


An observational study was performed on nulliparous labour pain in an area with a low epidural rate
which facilitated the comprehensive assessment of pain. Patients who had attended antenatal physiotherapy classes showed consistently less reaction to pain while experiencing the same level of perceived pain as the untrained. Duration of the first stage was the main factor associated with high pain levels. There was some evidence that training was particularly effective when there were foetal positional problems.

Keywords: Labor; Obstetrics; Pain; Prenatal Care


In a retrospective study problem orientated physiotherapy records were examined on 156 consecutive stroke patients admitted to medical wards and referred to the physiotherapy department. The purpose of the study was to identify from the problem lists those problems physiotherapists are dealing with in stroke care. There were 1338 problems recorded, and these were divided into 16 clinically meaningful subgroups. Three of the sixteen subgroups accounted for 60.2 percent of all the problems recorded, namely lack of voluntary movement and mobility in general (25.7 per cent), imbalance in muscle tone (19.5 per cent), and problems in maintaining balance (15.0 per cent). On discharge only 34.1 per cent of all problems were reported to be resolved. There was wide variation in the success rate claimed with different problems.

Keywords: Cerebrovascular Disorders; Movement; Rehabilitation


A covert monitoring procedure was employed to encourage a stroke patient to 'self-monitor' two parameters of her walking performance outside the physiotherapy department. The patient was aware that her walking would be monitored, but not of the identity of the monitors. After 12 days of covert monitoring, the two gait parameters, width of base and step length, were observed to be consistently within the specified limits. The covert monitoring procedure was thus successful in promoting consistent performance of a newly acquired gait beyond the physiotherapy department.

Keywords: Cerebrovascular Disorders; Gait; Walking


A number of studies which have examined reliability of spinal assessment procedures in manual therapy are reviewed. The tests examined were Passive Accessory Intervertebral Movements, Passive Physiological Intervertebral Movements, Straight Leg Raise and Forward Flexion. In general, tests of pain were found to be much more reproducible than tests of compliance. Straight Leg Raise and Forward Flexion tests were consistently more reliable than the Passive Intervertebral Movement tests. Possible explanations for these findings are advanced. The role of tests of compliance based on passive intervertebral movements in clinical decision-making may need to be re-examined. An appendix on reliability theory is included for the uninitiated reader.

Keywords: Decision Making; Intervertebral Disc; Reproducibility of Results; Spine

The Slump Test is becoming more widely accepted as an examination and treatment procedure for all levels of the vertebral column. The test is essential for a fuller recognition of the factors contributing to some patients' disorders. This paper describes the test, the normal pain response, predictable findings on examination, and use of the test in treatment.

Keywords: Diagnosis; Pain; Spine


The origin and early clinical use of 'therapeutic' ultrasound are reviewed and theories about the mechanism of action of ultrasound are traced and discussed. Changes of emphasis which have taken place in the empirically-based use of ultrasound are described. Some experimental evidence about the effect of ultrasound on tissue healing in vivo is presented, which indicates the need for controlled clinical trials in physiotherapeutic practice.

Keywords: Electric Stimulation Therapy; Ultrasonography


The stimulation of motor nerves to produce muscle contraction in normally innervated muscles is a long established part of orthodox physiotherapy. Recently however, a revival of interest in the area has occurred, particularly in the USA. Recent research has indicated that such stimulation can improve muscle strength, reduce muscle spasm and modulate spasticity, in addition to the more usual re-educative role of electrical stimulation. The concept of functional electrical stimulation (FES) seems destined to become an integral part of many programs for the neurologically handicapped patient.

This paper described the technique of motor stimulation using interferential currents. The stimulating parameters and electrode placement are considered, along with a detailed explanation of the pre-modulated system of electrode arrangement.

Keywords: Electric Stimulation Therapy; Muscles; Psychomotor Disorders