

ABSTRACTS / OPSOMMINGS

De Domenico, G. (1979) Tonic vibratory reflex. What is it? Can we use it? *Physiother.* 65, 44-48.

Author's Summary

The Tonic Vibratory Reflex (TVR) is a variant of the classical myotatic reflex. Essentially, it is the contraction of a muscle in response to a vibratory stimulus of low amplitude (<3 mm) at a frequency of about 100 Hz. The diagnostic and therapeutic possibilities of the TVR are being investigated by a number of authors. In general, they all support the view that this reflex has a significant rôle to play in the diagnosis and treatment of the patient with a neurological disability.

Atkinson, B. W. (1978) A new concept in traction tables: Kaltenborn three-dimensional treatment table. *Aust. J. Physiotherapy* 24, 219-220.

This is the description of a highly versatile traction table which was designed in Norway. It is divided into three sections which can be manipulated independently, and the lower, or lumbar section can be rotated around its long axis to give three-dimensional traction. Apart from its use as a traction table, by tipping the lower

end it can also be used for postural drainage. It would appear to be a very useful and versatile piece of equipment and of particular interest to physiotherapists who use orthopaedic manipulative techniques in their treatment of the spine.

H. C. Watts

Twomey, L. T. and Furniss, B. I. (1978) The life cycle of the intervertebral discs and vertebral bodies. A review. *Aust. J. Physiotherapy* 24, 209-218.

A well-documented and detailed description of the development and structure and ageing process of the vertebrae and their discs. The authors stress the need for a thorough understanding of the fundamental architecture of the back by those involved in the treatment of back pain syndromes. The fact that vertebrae and discs grow and age together as one fundamental unit is emphasised. "It follows that physical therapy procedures should not be selective just to the disc, but should involve the total functional unit . . . we need to be aware of the fact that our techniques have a considerable effect upon bony structures as we are of the effects

which they have on the soft structures of disc, ligaments and interstitial fluid." This article provides valuable reading to those involved in manipulative procedures of the spine.

H. C. Watts

Special supplement (1979) The health and safety at work act 1974 — policy statement and codes of safe practice. *Physiotherapy* 65 17-28.

A detachable booklet intended to provide guide-lines for District, Superintendent and clinical physiotherapists and Safety Representatives. Policy statements for District and Superintendent Physiotherapists are given, plus Codes of Safe practice covering physiotherapists; remedial helpers; clerical officers; and porters' duties. Safety precautions covering activities ranging from the storage of oxygen to endotracheal suctioning, and covering the main modalities of treatment are given. There is also a General Section outlining action in the event of fire, burns, electric shock and cardiac arrest. Copies of this booklet should be prominently displayed, and read, marked and inwardly digested by all.

H. C. Watts

Maitland, G. D. (1979) Examination of the cervical spine. *Austr. J. Physiother.* 25, 49.

Examination of the cervical spine is discussed briefly in relation to history, neurological examination, vertebral artery insufficiency and X-rays. The general principles of examination are presented.

Details of the examination are discussed more fully under the following headings: the upper cervical spine and its examination for cervical headache, the middle cervical spine with its examination being related to spondylosis/arthritis; the middle and lower cervical spine and its examination related to wry neck, nerve root irritation or compression, and whiplash injury.

Author's summary

Pevsner, D. N., Johnson, J. R. G., Blazina, M. E. (1979): The patellofemoral joint and its implications in the rehabilitation of the knee. *Phys. Ther.* 59, 869.

Previously, little has been done to correlate degeneration of the patellofemoral joint and the efficiency of the knee extensor mechanism. The authors have found in their experience of treating 1 800 patients that basal and age-dependant degeneration of the patellofemoral joint can be triggered during rehabilitation if care is not taken to maintain the proper alignment of the patella in its groove and to minimize the compression forces on it. Reviews of patellofemoral joint mechanics and pathology are stated to support their feelings. Guide-lines for suitable rehabilitation exercises are suggested.

M. J. Runnals

Kessler, R. M. (1979) Acute symptomatic disk prolapse. Clinical manifestations and therapeutic considerations *Phys. Ther.*, 59, 978.

A clear clinical picture of the nuclear prolapse stage of a disc lesion is given under the headings: age, sex, occupation, onset, nature of pain, observation, active and passive movement, dural mobility tests, neuromuscular tests and palpation. Explanations for the onset, nature of the pain and aberrant active movements are given and these are related to the management of the acute and postacute stages of treatment. Primary goals of management should include: resolution of the acute problem, restoration of optimal segmental mechanics, restoration of an optimal activity level, prevention of recurrent physical dysfunction and prevention of chronic pain behaviour patterns.

M. J. Runnals

Bantjes, A. en Klomp, R. (1978) Onderzoek naar de overdracht van ultrageluidenergie door kontakstoffen. *Ned. Tijdschrift Fysiotherapie*, 88, 275.

'n Hoogleraar in materiaaltegniek en 'n chemiese tegnoloog het ondersoek ingestel na die effektiwiteit van energie-oordrag van ultraklank deur middel van verskillende kontakstowwe. Die akoestiese impedansie (produk van digtheid materiaal en die snelheid van klank hierin) van menslike weefsel (bekend), materiaal behandelkop (bekend) en kontakstof (wat vasgestel moes word) is gebruik om die totale oordrag van ultraklank-energie te bereken. Om die akoestiese impedansie van die verskillende kontakstowwe te bekeken, is gebruik gemaak van 'n eksperimentele interferometer om die ultraklanksnelheid te meet en van 'n piknomete om die digtheid vas te stel. Alle kontakstowwe is gemeet by dieselfde temperatuur van 35°C (die gemiddelde huidtemperatuur). Die verskillende stappe van die eksperiment word uiteengesit en die resultate in tabelle vasgelê. Kontakstowwe wat nagegaan is, is o.a. aquasonic gel, glycerol (88%), glycerol (98%), hirudoïed gel en salf, vloeibare paraffien water. Dit blyk dat die energie-oordrag van behandelkop na kontakstof 'n persentasie oplewer van 25-42%. Die res word gereflekteer. By die oorgang kontakstof — menslike weefsel — is die persentasie 97-100%. Die totale oordrag-persentasie lê tussen 25% en 41% (vloeibare paraffien 25%, water 30%, aquasonic gel 32% en glycerol 40-41%). Die gevolgtrekking wat hieruit gemaak kan word, is dat daar oor die algemeen nie so 'n groot verskil in energie-oordrag tussen die verskillende kontakstowwe is as wat vroeër aanvaar is nie.

B.G.

Harris, S. R. (1978) Neurodevelopmental treatment approach for teaching swimming to cerebral palsied children. *Physical Ther.*, 58, 979-983.

After a review of the general advantages of hydrotherapy the author gives a critical overview of current swimming programmes used for cerebral palsied children, pointing out misconceptions regarding the nature of the disability, the inclusion of asymmetrical swimming strokes, the inclusion of strokes which will increase the abnormal patterns and the inclusion of strokes which are beyond the capabilities of most cerebral palsied children. She also points out that most books recommend a pool temperature of 28-29°C Celsius, a temperature which will increase spasticity in most children.

The author, who has had experience both in teaching swimming and in neurodevelopmental therapy, recommends a minimum pool temperature of 35°C. She proposes a model for a swimming programme designed to implement N.D.T. goals of facilitating normal movement patterns against a background of normal postural tone. Strokes taught are limited to breast-stroke and elementary backstroke, both symmetrical strokes performed with the head in midline in order to avoid utilization of tonic reflexes or reinforcement of abnormal patterns. Sculling and finning, also symmetrical strokes, are recommended for quadriplegics with limited upper extremity movement. The programme, designed as a programme for teaching swimming rather than as an individual treatment programme, includes introductory skills, secondary skills, swimming strokes, water survival skills and functional skills. Secondary skills include breathing, relaxation and floating and emphasize the use of head and jaw control where required. Functional skills include sitting balance, standing balance, weight-shifting, walking, one-footed balance and stair-climbing in different depths of water. Suggestions regarding

adaptation of different skills for different categories of cerebral palsy are also made.

S.I.-C.

Lane, R. E. J. (1978) Facilitation of Weight Transference in the Stroke Patient *Physiotherapy*, 64, 260.

The validity of treatment of physiotherapy for stroke victims must be questioned if the best use is to be made of our limited resources. In this article the prognosis for recovery in relation to the severity of the stroke is given. The necessity for re-educating postural awareness as a basis for movement is stressed, and the essential role of weight-bearing described together with simple exercises that may safely be practised by the patient on his own. The author stresses that all people involved should be taught the most effective way of helping the patient reach his maximum potential. This is a very useful article, which will be of great value to those who are not familiar with current methods of treatment.

H.C.W.

Frymoyer, J. W., Hanley, E., How, J., Kuhlmann, D. and Matteri, R. (1978): Disc Excision and Spine Fusion in the Management of Lumbar Disc Disease. A Minimum Ten-Year Follow-up. *Spine* 3.

Seventy-nine percent of 312 patients who underwent lumbar disc surgery were evaluated at least 10 years postoperatively (mean — 13.7 years). Residual back and nerve root symptoms and functional impairment were equally as common among the 143 patients who underwent fusion as they were among the 64 patients who did not. Thirty percent of the patients whose spines were fused and 37.7% of those patients whose spines were not fused were considered longterm failures because of persistent symptoms or the need for reoperation. Thirty seven percent of the fusion patients had persistent graft donor site symptoms. Examined patients showed a high percentage of residual neurological defects. An unexplained positive Trendelenburg sign was present in 14.8% of the fusion patients and in 18.2% of the patients whose spines were not fused. Although retrospective studies often have problems of accuracy, this analysis confirms other observations that midline spinal fusion offers few benefits in the management of lumbar disc disease.

Authors' summary

White, A. A. and Panjabi, M. M. (1978): The Basic Kinematics of the Human Spine. A Review of Past and Current Knowledge. *Spine* 3.

Spinal kinematics concerns the kinds and amounts of motion the human spine undergoes during its normal physiologic movements. This paper is a review of the research in this area and provides information about past and current knowledge. The biomechanic terms essential for the precise and accurate description of spinal kinematics are defined, described, and exemplified. Requirements for a comprehensive description of spinal kinematics are presented to provide a perspective for present knowledge and future research. Finally, the current status of spinal kinematic research is described, and information about the ranges of motion of the human spine for various vertebral levels and for motion in different directions is provided.

Author's Summary

"Spine" Volume 3 No. 1 March 1978.

A symposium and several articles on Arachnoiditis are included.

B. Winter.

Hayne (1978): Safe . . . Sure? *Physiotherapy* 64, 10 - 13.

Although this article is primarily written for physiotherapists in the British National Health Service, most of it is applicable to a Physiotherapy Department anywhere in the world.

It spells out the responsibilities and legal liabilities of an employee in terms of:—

1. *The Health and Safety at Work Act 1974 (HMSO 1974).*
2. *Civil Law*, which covers trespass, unlawful damage, nuisance, defamation and negligence — the latter being the most relevant to the practising physiotherapist.
3. *Codes of Ethics*, covering such aspects as:—
 - (a) giving treatment prescribed by a doctor, knowing it to be dangerous;
 - (b) confidentiality; the question of knowledge of serious crime is discussed.
4. *Supervision of patients undergoing treatment*, together with instructions and warnings to the patient. "Inadequate warnings may lead to substantial claims for damages".
5. *Helpers* — their role, and the responsibilities of the physiotherapists training them are described.
6. *Safety in the Department*: the potential sources of accidents are detailed and include such items as floor surfaces, illumination and equipment. Under the latter heading many searching questions are asked. Fire-prevention equipment and drill are discussed; also the potential dangers in gymnasias and hydrotherapy departments. The importance of regular equipment checks is stressed.
7. *Physiotherapists in Private Practice*. Their responsibilities are likewise spelled out, and include such aspects as the patient's consent for treatment, especially in the case of children and the aged. Chaperonage is discussed.

This is a comprehensive and valuable article which physiotherapists of all ranks would do well to read, mark and inwardly digest.

H. C. WATTS

Pieterse, M (1977): An Intervention Programme for Mentally Retarded Infants: A Behaviour Modification Approach. *Australian Journal of Physiotherapy* 23, 141 - 144.

An interesting article describing the education principle of behaviour reinforcement and its application to the treatment of the Down's syndrome child. "If a child emits a behaviour and the consequences are rewarded then the rates of that behaviour will increase. Conversely, if not rewarded it will diminish". "Teachers and parents often unwittingly reward undesirable behaviour by attending to it, and extinguish desirable behaviour by ignoring it. They do not realise that adult attention is rewarding to children and can increase undesirable and well as desirable behaviour." "Experience has supported the principle that increasing desirable behaviour decreases undesirable behaviour. Children cannot play constructively and destructively simultaneously". The writer feels that they are often victims of "Low Expectations" and therefore do not attain their maximal potential: "The parent who accepts a one-word utterance without setting a higher standard will continue to get one-word utterances".



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The article makes particular reference to Down's syndrome children, and describes a multidisciplinary model for their management. It concludes that the results of research based on this model "support the necessity for early intervention in the treatment of Down's syndrome children and particularly the need for a special educator". "The children are achieving and maintaining many skills of normal children their own age and are superior to other Down's syndrome children tested".

This article will be of interest to all those who are involved with retarded children.

H C WATTS

Maitland, G. D. (1978) Acute Locking of the Cervical Spine. *Austr. Jnl. Physiother.*, 24, 3.

Acute locking of the cervical spine is described under the headings, history, deformity, site of pain, pathology, aim of treatment, selection of treatment techniques, physical examination and prophylaxis. The treatment techniques indicated i.e. mobilisation and manipulation are fully illustrated and detailed.

M.J.R.

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