

ABSTRACTS

FIRST AND SECOND QUARTERS, 1972

Am. J. Occup. Ther. 26, 3, April, 1972:

RIDER, B. A.: Tonic Neck Reflexes.

Summary: This article reviews some of the literature on the asymmetrical and symmetrical tonic neck reflexes and their relevance in healthy and neurologically impaired persons.

NORTON, Y.: Minimal Cerebral Dysfunction.

Summary: This is the first part of a two-part paper which deals comprehensively with the problems of children with minimal cerebral dysfunction. In this issue, the stages and processes in the development of perceptual-motor function are analysed, emphasizing the importance of normal sensorimotor feedback and the effect of continual faulty feedback on the developing patterns of movement.

Am. J. Occup. Ther. 26, 4, May/June, 1972:

NORTON, Y.: Minimal Cerebral Dysfunction.

Summary: The second part of the above-mentioned paper will be of considerable interest to physiotherapists. It deals with the evaluation of minimal cerebral dysfunction, and proposes a method of treatment based upon the Bobaths' neurodevelopmental approach. The author shows how abnormal reflexes and patterns of movement hamper the development of motor skills in even minimally affected children and describes how treatment can facilitate organized motor behaviour and prepare the child for the attainment of more advanced perceptual and academic skills. A comprehensive assessment chart designed to evaluate the quality of movement is presented with detailed notes on the administration and evaluation of each test.

Brain, 45, 1, 1972:

ASHBY, P., ANDREWS, C., KNOWLES, L., and LANCE, J. W.:

Pyramidal and Extra-pyramidal Control of Tonic Mechanisms in the Cat.

Summary: This study was prompted by the observation that hemiplegia as a result of a lesion in the internal capsule is characterized by exaggeration of tonic muscle reflexes in the affected limbs, whilst experimental pure pyramidal lesions show no increased tonic activity. The authors used vibration to produce a sustained reflex muscle contraction and then attempted to inhibit this contraction by electrical stimulation of the cortex and brainstem. Inhibition was obtained along a pathway extending from the cruciate cortex through the medial portions of the internal capsule and cerebral peduncles to the region of the brainstem. It was concluded that an extra-pyramidal pathway is responsible for the inhibition of reflex tonic activity and that interruption of this pathway in the internal capsule results in the release of tonic mechanisms.

Develop. Med. and Child Neurol., 14, 2, April, 1972:

S. SAINT-ANNE DARGASSIES: Neurodevelopmental Symptoms during the first year of life.

Summary: The author, well known for his neurological studies of infants, discusses in detail the major signs of both normal development and neurodevelopmental disorder at various ages from newborn to one year of age. He emphasizes the importance of not only evaluating the infant's level in the various fields of normal development, but also of conducting a systematic search for abnormal neurological signs. In the second part a comprehensive series of examination and recording charts is given, the results of which – when the infant is followed over even a short period – may provide "alarm signals" of the development of motor or psycho-affective problems. This long article would make valuable reading for physiotherapists concerned with the evaluation of young brain-damaged children.

Exp. Brain Research, 14, 3, February, 1972:

STUART, D. G., MOSHER, C. G., GERLACH, R. L., and REINKING, R. M.: Mechanical Arrangement and Transducing properties of Golgi tendon organs.

Summary: In an investigation of tendon-organs in the soleus and anterior tibial muscles of the cat the authors demonstrated that tendon-organs are arranged both in parallel and in series with adjacent muscle fibres, and that activation of the one could modify the response of the other. They also confirmed the findings of previous workers who showed that tendon-organs are more sensitive to active (contraction) forces than to passive (stretch) forces. They concluded that tendon-organs are active in the continual reflex control of normal muscle activity.

J. Appl. Physiol., 32, 4, April, 1972:

THYS, H., FARAGGIANA, T., and MARGARIA, R.: Utilization of muscle elasticity in exercise.

Summary: Parameters were measured during two exercises – deep knee bending followed immediately by knee extension, and deep knee bending followed by a brief pause before extension was attempted. In all cases the maximal speed was higher, the time taken less, and the mean power and mechanical efficiency were greater in the exercise utilizing "rebound". It was concluded that "elastic potential energy" stored in the muscles stretched during the knee-bending phase is utilized for the performance of extension.

J. Neurosurg., 36, 4, April, 1972:

Summary: The greater part of this issue is devoted to spinal cord injuries. The editorial covers federal programs for the care and study of spinal cord injuries in America. It is followed by an interesting series of articles on experimental work being conducted on paraplegia.

Neurology, 22, 2, February, 1972:

HOPPER, C. L., MATTHEWS, C. G., and CLEELAND, C. S.: Symptom Instability and thermoregulation in multiple sclerosis.

Summary: A multiple sclerosis patient who had noticed that his vision (and to a less marked degree the strength and co-ordination of his limbs) improved considerably after drinking iced water, was studied further. Various temperature-related tests were carried out and confirmed that visual acuity varied inversely with the direction of body temperature change. This improvement appeared more due to the type of cold-stimulus applied than to the degree of change, since a brief immersion of one hand in ice water also produced maximal improvement. For this reason the authors postulate that the improvement may be due to a hormonal thermoregulatory response rather than to direct cooling of the affected nerves.

Ibid., 22, 3, March, 1972:

HECKMANN, J. R.: Excitability curve: a new technique for assessing human peripheral nerve excitability in vivo.

Summary: After discussing the possible inaccuracy of strength-duration curves, mostly due to human error, the authors describe a technique for studying the excitability of nerves rather than the degree of innervation. This is done by means of a surface recording electrode situated proximally over the nerve, which records the nerve action potentials produced by a stimulating electrode delivering square-wave impulses of decreasing duration distally. The excitability curve is obtained at a lower rheobase than the strength-duration curve, and the differences in the curves were found to be statistically significant at durations of 1 and 0.03 msec.