

limb deficits than angular force and therefore suggest that both strength and interjoint coordination deficits have an impact on upper limb performance.

**15. Coordination of Head-Eye and Foot Movements During a Locomotor Task**

*Frederike M. J. van Wijck, MSc MCSP, and D. N. Lee (Newcastle upon Tyne, UK)*

In rehabilitation, vision and locomotion are usually assessed separately because the coordination between these functions is difficult to measure. In certain clinical populations, however (e.g., cerebral palsy), disorders of vision and gait often coexist. The aim of the present study was to develop a methodology to measure the coordination of head, eye, and foot movements during locomotion and to explore these movements in a normal population. The subjects (n = 75) were required to negotiate a straight trajectory of stepping stones. Vertical eye movements were registered with the Ober2 UNO-Parallel Infrared Eye Movement Monitoring System (Permobil Meditech Inc.), while head and foot movements were measured with a Selspot System (Selective Electronic Company AB). The results demonstrate that safe locomotion on more demanding terrain requires precise coordination of the head-eye and locomotor systems well before the foot is placed (mean: 695 ms, SD 287), a saccade is made onto the target position, on which gaze is then stabilised (mean: 350 ms, SD 149). Thus, gaze describes a distinctive crow steplike profile, which is coupled to the position of the feet in a rhythmic pattern. This indicates that visual information about the target is sampled prospectively

and at specific events in the gait cycle. This novel methodology may provide information about breakdown in the coordination between gaze and foot movements in certain clinical populations, which may in turn be used to devise more effective rehabilitation strategies.

**16. Clinical Aspects of Different Remission Stages in Patients with Transient Apallic Syndrome**

*Günther Birbamer and F. Gerstenbrand (Vienna, Austria)*

In patients with transient apallic syndrome after acute brain damage, eight phases of remission can be differentiated. The first phase is characterized by visual fixation and primitive emotional reactions. After pain stimulation, undirected defense movements can be observed. Disinhibition of the autonomic regulating system continues. In the second remission phase, the patient follows with his eyes objects or persons and the emotional reactions are more differentiated. In the third remission phase, the patient tries to bring objects to his mouth and begins to accept oral feeding. In the fourth remission phase, the so-called Klüver-Bucy phase, movements of the patients are influenced by grasping and bringing objects to the mouth. The main symptoms are hyperphagia, hypermetamorphysmus, and sexual overactivity characterized by manipulation of the genital region. The patient takes up contact with his environment and starts to react to simple orders given by words or gesture. In the fifth phase, simple words can be produced and the movements of the extremities becomes more finalised. The sixth remission phase shows a Korsakoff symptomatology with disorientation

in time and space, residual spasticity, and extrapyramidal symptoms; primitive patterns are present. In the seventh remission phase, the patient shows an amnesic syndrome, with severe memory disturbances and irritability. Finally, the eighth remission phase is characterized by cognitive disorders and some residual symptoms of spasticity, frontal lobe signs, as well as emotional dysregulation. During the remission stage, the superimposed local, multifocal regional or diffuse brain lesions have a severe influence on the remission stage and the outcome. In summary, differentiation of remission-phases in patients with transient apallic syndrome allows a better evaluation of the clinical course and helps to make a more specific neurorehabilitative prognosis.

#### **17. Further Validation of the Rivermead Visual Gait Assessment**

*Sue Lord (Nelson, New Zealand)*

The Rivermead Visual Gait Assessment (RVGA) was developed to provide a systematic and objective method of observational gait analysis for clinical use with people who present with altered gait patterns due to neurologic disease. Preliminary studies undertaken by Lord, Halligan, and Wade (1998) indicated that the RVGA is a reliable, valid, and sensitive measure of gait impairment. This paper describes the RVGA and presents the results of current research, supported by the New Zealand Neurological Foundation, which tests further aspects of validity and utility of the RVGA as an outcome measure. Several investigations are presently under way. 1. The RVGA is being used by

physiotherapists in four hospitals throughout New Zealand for patients undergoing rehabilitation at 6-weekly intervals from initial assessment until discharge from physiotherapy services. The RVGA score is correlated with 10-metre timed walk, which is assessed simultaneously on each occasion. 2. Test-retest reliability is being tested further on 20 subjects who have not changed clinically on two occasions a week apart. 3. A pilot study of RVGA is under way at Auckland Technical Institute comparing the kinematic data derived from gait laboratory analysis on five subjects on selected observations at the hip, knee, and ankle during swing and stance phases. *Reference:* Lord SE, Halligan PW, and Wade DT. Visual gait analysis. The development of a clinical assessment and scale. *Clinical Rehabilitation* 1998; 12:107-119.

#### **18. The Neuromentalindex (NMI): A Resource-Oriented Scale for Basic Psychic, Mental, and Behavioral Aspects of Neurorehabilitation Patients Additional to the Barthel Index (BI)**

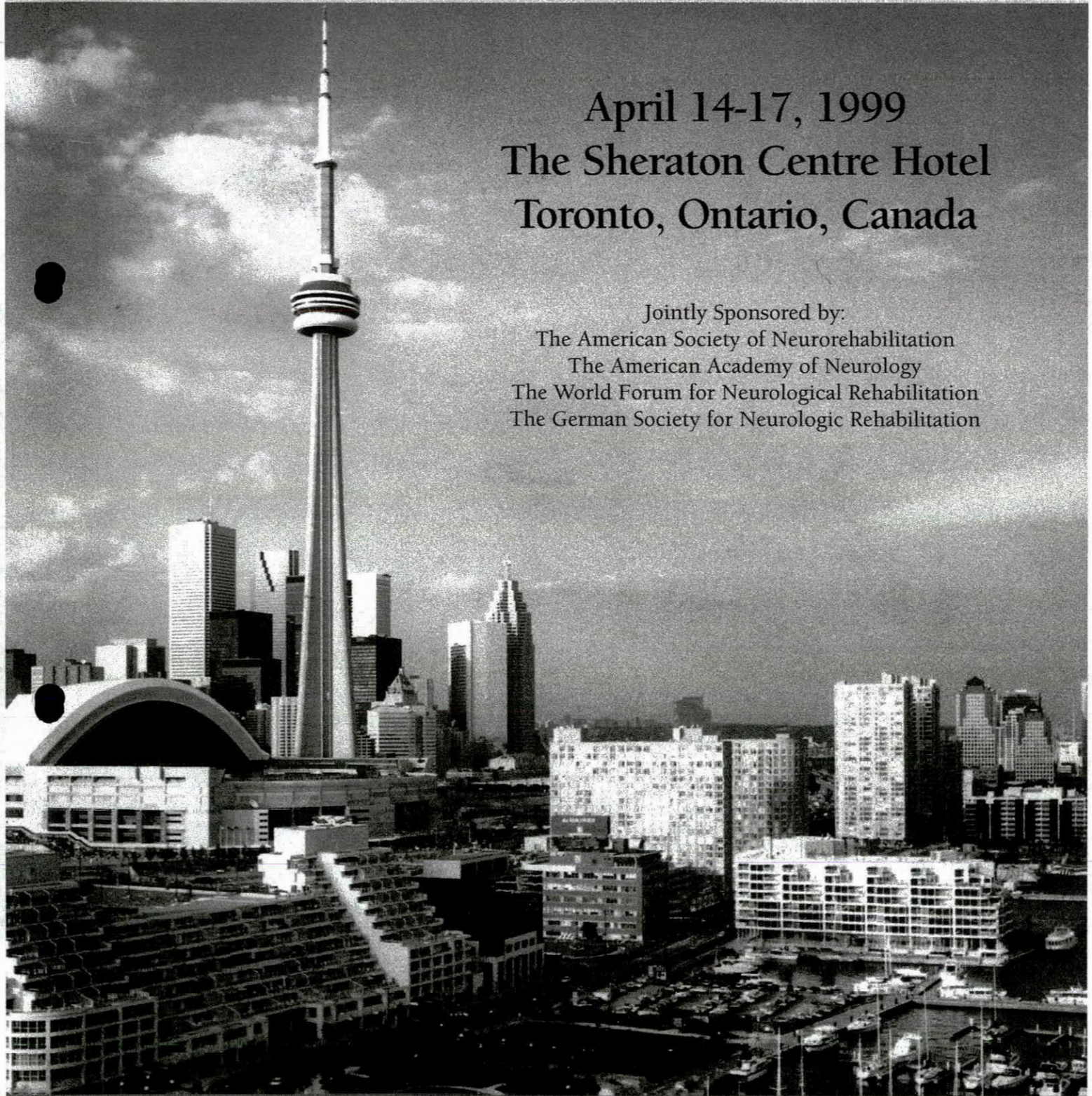
*Prof. Ch. Müller, M. Atria, B. Voller, E. Auff (all from Vienna, Austria)*

We present a translated version of the Neuromentalindex (NMI), a scale designed originally in German within the disability dimension aimed to accompany the BI in terms of care-resources needed for "behavioural and communicative aspects of daily life" (BCADL) in neurorehabilitation patients. Though the BCADL are essential for the care resources needed by neurorehabilitation patients, patient information before admission to a neurorehabilitation institution often

# 2ND WORLD CONGRESS IN NEUROLOGICAL REHABILITATION

April 14-17, 1999  
The Sheraton Centre Hotel  
Toronto, Ontario, Canada

Jointly Sponsored by:  
The American Society of Neurorehabilitation  
The American Academy of Neurology  
The World Forum for Neurological Rehabilitation  
The German Society for Neurologic Rehabilitation



# Neurorehabilitation and Neural Repair



**Abstracts 2Nd World Congress in Neurological Rehabilitation: April 14-17, 1999 the Sheraton Centre Hotel Toronto, Ontario, Canada**

First Published March 1, 1999 | Other

Table of Contents

Volume 13 Issue 1, March 1999



**16. Clinical Aspects of Different Remission Stages in Patients with Transient Apallic Syndrome (all from Vienna, Austria)  
G. Birbamer, F. Gerstenbrand**

First Published Mar 1, 1999; pp. 32-33

Abstract