Introduction

This issue of *NeuroRehabilitation* focuses on neuro-orthopaedic issues. The latter term refers to musculoskeletal consequences of acquired brain injury but in this special issue, spasticity will be the common musculoskeletal leitmotiv that runs through all the articles. The upper motoneuron syndrome (UMN) is frequently seen after acquired brain injury and spasticity has been traditionally described as a positive feature of UMN. In a technical sense, spasticity refers to velocity dependent stretch reflexes and, in recent years, the modified Ashworth Scale has gained popularity as a clinical measure of spastic resistance to passive stretch. Few patients, however, have complained directly to their physicians or therapists about the state of their stretch reflexes or their Ashworth scores. The term spasticity has come to mean something more to clinicians and patients and it remains entrenched as a code or buzz word for many types of problems that patients with UMN exhibit. Perhaps the colloquial, adjectival use of the word "spastic" can help us. Certain individuals without neurological deficit are sometimes described as "spastic" in their personality traits. "Spastic personality" suggests someone who is tight, anxious, compulsive, inflexible, rigid. The underlying issue for such individuals is how they function socially and behaviorally. The expression "spastic personality" tries to convey that the person who has it is dysfunctional in certain ways. It may also be the same with the neurological patient who has spasticity and UMN. Namely, the spastic descriptor tries to convey that the person who has it is dysfunctional in many ways beyond what Ashworth scores can tell us. The collection of papers in this issue aims to make this point.

When this issue was put together, we wanted the authors to get to issues of function that underlie spastic phenomena. All agreed that professionals learn from their patients. Therefore, it was strongly felt that actual case studies, in brief form, would be a good way to illustrate the methods of analysis and treatment that each group of authors presented on their particular topic. The reader will, therefore, find case reports that illustrate concepts developed by each group of authors within the body of their text. Sometimes the cases are cited at the end of an article, sometimes they are interleaved within the running text. It is hoped that the reader will gain greater insight into the concepts, strategies and techniques that reflect many of the neuro-orthopaedic issues presented in this special issue. As they described their own cases, it was certainly revealing to many of the authors that clinical application of the principles, strategies and techniques that they clarified for the reader became rather modified when they themselves applied it to actual patients. Though professionals prefer that theory inform practice, it is not unusual, and perhaps it is even typical, for practice to inform theory. We urge the reader to examine the presented cases critically and to compare what was actually done for these patients with what is presented in the text as theoretical exposition.

Laborde, et al. discuss recent use of a technology first applied successfully to the treatment of spasticity in spinal cord injury. Intrathecal baclofen for spasticity of cerebral origin is their topic and they quickly lay down the functional gauntlet by indicating that ideal candidates "include ambulatory patients with lower extremity weakness in combination with lower extremity spasticity. . .". Their case reports illustrate the struggle that clinicians undergo when dealing with complicated patients whose problems of movement and posture are light years removed from Ashworth scores.

Gormley reviews a range of methods currently available to treat spasticity of cerebral origin in children. Pediatric clinicians will delight in his subtle juxtaposition of broad categories of treatment with meticulous treatment details that make this article something they would want to keep on top of their pile. He, too, lays down the functional gauntlet early in his paper, asserting with others that the "goal of treating children with cerebral palsy or traumatic brain injury is to assist in acquiring functional skills". Three case studies beautifully illustrate how clinicians might approach the menu of spasticity treatments for children of different ages and clinical circumstances.

Herman and Lange tackle the functional problems of seating and positioning as linked to spastic deformities in every conceivable part of the body. Unlike seating for normal individuals that values comfort and convenience, one of the key concepts of the article is that therapeutic seating and positioning has an orthotic value and a corrective purpose. To the reader's advan-

NeuroRehabilitation 12 (1999) 79–80
ISSN 1053-8135 / $8.00

tage, Herman and Lange develop this idea thoroughly. They also provide the additional functional rationale that seating enables access to other Assistive Technologies such as wheelchairs, computers, communication and environmental control systems. An interesting case study complements the authors' thoroughness by illustrating how therapeutic seating intervention may be integrated with other treatment goals.

Keenan, et al. present an experienced view regarding the possibilities of functional restoration using neuro-orthopaedic techniques applied to the problems of patients with an UMN. In their view, peripheral manipulations such as tendon lengthenings, transfers, and releases can improve the balance of muscle and soft tissue forces across joints, thereby enabling improved motor control, range of motion and movement functionality. They describe the diagnostic and therapeutic features of a number of common patterns of movement dysfunction seen after brain injury and they provide details of post-operative rehabilitation that is often left out in such discussions elsewhere. An interleaved case report is striking for its many variations in treatment, again illustrating the heuristic value of actual case material and the kind of clinical decision making that needs to take place in such complicated patients.

Heterotopic ossification is a disabling consequence of traumatic brain injury that is often associated with spasticity. Lazarus, et al. present their experience with heterotopic ossification at the elbow. Their series of 24 cases covering resection of heterotopic ossification in 27 elbows is to our knowledge, the largest series for elbows ever reported. A close reading of the article will reveal that merely improving range of motion by removing heterotopic ossification is not the goal of Lazarus, et al. Rather, their goal is to improve the functional range of the elbow as they indicate in their discussion section, noteworthy reading for the reader.

Nathaniel H. Mayer, MD
Director, Drucker Brain Injury Center
Director, Motor Control Analysis Laboratory
MossRehab Hospital
1200 W. Tabor Road
Philadelphia, PA 19141