Letter to the Editor

Neurodynamics in a broader perspective

We read with some dismay the editorial by Shacklock (2005a), and responses by Greening and Leary (2006) and again Shacklock (2006). The Editorial on Neurodynamics (Shacklock, 2005a) was a missed opportunity to position nerve gliding exercises within the modern framework of manual therapy and pain sciences. Furthermore, some of the author’s views on research methodology (such as statements made regarding reviewing the literature, reliability and ethics) conflict with basic principles of research and may misguide early career researchers and clinicians.

The inference in the editorial (Shacklock, 2005a) that the material by Butler (1991) and Butler and Gifford (1989) created widespread 1880s style nerve stretching is dismissed. In those publications, the term “stretch” was always rejected in favour of “mobilisation” and suggested therapy at the time was guided by Maitland’s “irritability, severity and nature” system. Later publications (Gifford, 1998; Butler, 2000) avoided the term “tension” and supported “neurodynamics”. Still, on this note, Greening and Leary’s (2006) use of the word “stretch” is evocative and unfortunate.

The conclusion that longitudinal nerve excursion is not restricted in patients with carpal tunnel syndrome (CTS) (Greening and Leary, 2006) based on the findings by Erel et al. (2003) seems premature. The limited research available on this topic reports conflicting findings (Valls-Sole et al., 1995; Erel et al., 2003; Tuzuner et al., 2004; Hough et al., 2005). More importantly however, whether longitudinal movement is restricted or not in itself should not refrain the clinician from considering nerve gliding exercises for CTS. Restoration of restricted nerve movement is unlikely to be the (main) therapeutic effect of nerve gliding exercises and alternative effects of these exercises should be considered (Coppieters and Butler, 2007).

There is a wide variety of exercises available and preliminary analysis demonstrates that much gentler techniques are available than “stretching techniques” (Coppieters and Butler, 2007). Although clinical validation is needed, these techniques may be associated with the beneficial effects of movement and nerve gliding (as demonstrated by, for example, Rozmaryn et al., 1998), but without the adverse effects of excessive strain. The suggestion that techniques that cause a painful response are invariably undesired (Greening and Leary, 2006) deserves further consideration. The patient’s condition, the pain mechanism in operation and the patient’s understanding of the pain may be such that a (mildly) painful response during, or for a short duration after activity or techniques, may not be problematic and may be the most optimal path to recovery.

Inflamed, adhered and mechanically challenged peripheral nerves undoubtedly exist. However there is surely a large group of patients where findings of altered neurodynamic tests are broadly a manifestation of a person’s inability to cope. That is, the nervous system has become peripherally and centrally unregulated due to non-mechanical inputs with resultant perturbations and contributions from the endocrine, autonomic, motor, and immune systems. The nervous system may glide reasonably well but is still sensitive to movement. The work by Erel et al. (2003) could be interpreted to support this contention.

This means that responses to structural differentiation may have little to do with mechanical alterations in neural tissue, for example, ankle dorsiflexion increasing SLR evoked pain may be just the addition of normal, albeit threatening input to a pain neuromatrix. Responses to neurodynamic sequencing, first proposed and practiced by Maitland (1985) though claimed by Shacklock (2005b), may simply be due to the attention placed on the first of a combination of movements. In central sensitivity, there is still a place for neural mobilisation, as a sliding technique should allow mechanically non-aggressive large range novel movements which could be therapeutic for central mechanisms on the basis of threat reduction. The notion that education enhancing the patient’s understanding of pain may reduce the sensitivity of neurones (Moseley et al., 2004) and allow better movement has been missed, yet surely this is a part of modern neurodynamics.

The role of central and homoeostatic systems in neurodynamics is the real and undiscovered issue for researchers and clinicians. Only then, will discussion on nomenclature, management, and research strategies be on firm ground.
References


David S. Butler
University of South Australia,
Neuro Orthopaedic Institute, Australia

Michel W. Coppieters
Division of Physiotherapy, The University of Queensland, Brisbane, Australia
E-mail address: m.coppieters@uq.edu.au