ClinicalClues

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July 2019 No. 11

Neuropathic Pain…Do We Tension or Glide?

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In the clinic sometimes testing maneuvers are also used as treatment maneuvers; muscle tightness testing and stretching is a classic example. Is this also true of neural tension testing and nerve gliding treatment?

Neural Tension Testing

Tension / Stress / Strain is created when a stretch is placed on a nerve at both ends at the same time (i.e. over the full length of the nerve). This tension is created by positioning multiple joints, so the entire nerve is lengthened, creating vascular and axoplasmic flow changes. See Figure 1.

Upper limb neural tension tests (ULNTT) may be used as a screening tool for any of the three main upper extremity peripheral nerves in continuity to determine the presence of peripheral neuropathic pain. The stretch placed on each nerve attempts to reproduce symptoms and to detect increased nerve mechano-sensitivity that is associated with cervical radiculopathy and nerve compression syndromes. Treatment using neural mobilization techniques is based upon the findings of the ULNTT. (1 -3)

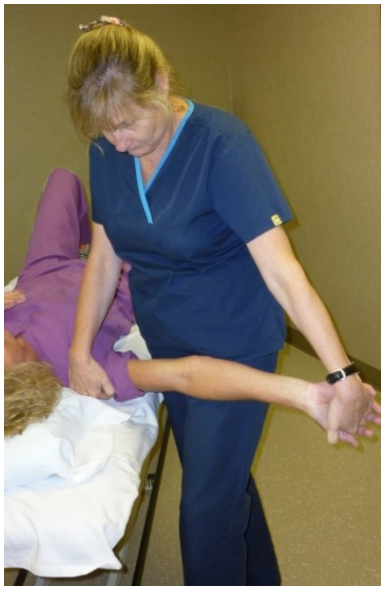


Fig. 1: Example of a median nerve ULNTT: shoulder external rotation and abduction with forearm supination and elbow, wrist, and hand extension.

Neural Mobilization (Nerve Gliding) Treatment

Gliding / Sliding / Excursion / FLOSSING (1,4) (see explanation below for FLOSSING) is accomplished when two joints are moved to apply a stretch at one end of the nerve while allowing slack at the other end of the nerve. Neural mobilization techniques aim to decrease pain by restoring normal neural physiology. This movement minimizes tension on the entire nerve while localizing the nerve gliding to improve both extraneural and intraneural mobility.

To use this technique effectively, therapists must have an in-depth knowledge of neuropathic pain, biomechanics, and physiology of the peripheral nervous system. Neural mobilization techniques should be applied slowly and stopped short of the pain threshold.

One particular technique described by Porretto-Loehrke and Soika uses the mnemonic FLOSS to guide treatment; F: Fix the adjacent joint, L: Limit the ROM, O: Oscillate proximal or distal (or both) to level of compression S: Slow, rhythmic motion, S: Symptom free. (4) See Figure 2.

When to Use Neural Testing Versus Neural Mobilization

Neural Testing provides information about both the sensitivity of the nerve as well as the location of the sensitivity, determining the focus of neural mobilization techniques. Retesting provides valuable documentation of improvement of the nerve irritability.

Neural Mobilization treatment is intended to restore normal movement of the intact nerve to reduce pain. The therapist must be cautious to avoid putting stress on an already irritated nerve; it should never exacerbate symptoms and should be continued only if improvement is noted. The goal of neural mobilization

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is to increase the excursion of the nerve while decreasing the tension on the nerve.

For an irritable nerve, neural mobilization may be initiated proximal or distal to the suspected area of irritation. Because individuals with neuropathic pain often have other associated conditions such as muscle guarding and/or tenosynovitis, current research emphasizes the importance of performing soft tissue mobilization in combination with, or prior to, neural mobilization. (5)



Figure 2, A & B: Example of a FLOSSING technique for the ulnar nerve at the elbow. (A) Elbow and forearm are stable at the side with forearm supination while the patient elevates the scapula and side bends the neck while maintaining extension of the wrist and ulnar digits. (B) The patient then brings the wrist and ulnar digits into a more neutral position as the scapula and cervical spine are also brought into neutral.

Nerve gliding is not appropriate for all patients with nerve symptoms and is contraindicated in the presence of malignancy, active inflammatory conditions, complex regional pain syndrome, recently repaired nerves, and for individuals without a definitive diagnosis or loss of protective sensibility. Nerve gliding should not be part of a home exercise program until a patient can understand the rationale of nerve gliding and demonstrate the exercises correctly in the clinic.

Although neural mobilization techniques may be a helpful non-operative treatment, clinical judgment is required to determine treatment parameters, as additional studies are needed to determine the ideal frequency and duration of treatment.

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