

## Neural mechanosensitivity in relation to neck and arm pain.

*Diagnosis and management of the patient with musculoskeletal neck and arm pain is often challenging. The history, aggravating factors, area and type of pain, as well as the presence of altered sensory symptoms all contribute to the clinical reasoning a physiotherapist will apply during the initial and subsequent consultations to determine the exact nature of injury.*

### Symptoms

Common sources of upper limb pain include cervical disc prolapse or protrusion, joint pathology with associated nerve root irritation, and lower cervical spine pathology with somatic referred pain to the arm. Mechanosensitivity of the neural system is a significant component of these conditions.

Pain emanates from irritated or damaged neural tissue anywhere along the nerve from its root to the distal insertion of the peripheral nerve. This pain is often caused by injury or postural muscle imbalance of an area where the nerve passes near or through soft tissues. This area is described by physiotherapists as a neural interface. There is no genuine neurological impairment and while the pain type and distribution varies, it is not of the severity and nature of radicular pain.

### What can a physio do?

Physiotherapists test neural mechanosensitivity as a potential cause or component of pain using a number of specific clinical tests. These tests have biases reflecting the major upper limb nerves, that is, median, radial and ulna. Often mechanosensitivity can either mimic or contribute to the pain associated with other common upper limb diagnoses, for example, tennis elbow, carpal tunnel, wrist tendinitis or tendinosis.



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### Treatments and techniques used

Physiotherapists treat neural mechanosensitivity using manual therapy techniques aimed at changing the affected interface whether this be joint or soft tissue. They would then use the clinical tests mentioned above to reassess the effectiveness of these interventions.

Correcting postural muscle imbalance is also an essential component of treatment. In cases of low irritability, neural glides and slides, which put these nerves through their full excursions of range, may be used. Anatomically nerves fold or concertina up in certain positions and unfold to lengthen in the test positions.

These movements are described as gliding or sliding the nerve tissue and have been shown to be an effective intervention in brachialgia patients in a recent study conducted through the University of Queensland (Robert Nee (2012), *Journal of Physiotherapy* 58: 23-31). It is also important not to attempt to apply a sustained stretch to the upper limb neural tissues as this may aggravate the condition. Manual therapy technique selection and the development of the appropriate exercise program are crucial in the treatment of patients with neck and upper limb pain related to neural irritation or mechanosensitivity. The pain experienced by these patients is often quite irritable and inappropriate management can result in longer term pain patterns and disability.

The physiotherapists at this clinic are well trained to assess, diagnose and treat your patients with neck pain that radiates down the arm. Good communication with both patient and referrer is an important component of the management provided by physiotherapists treating these patients. Please feel free to contact our practice to discuss the physiotherapy management of this condition and its impact on your patient's recovery.



### Contact details