Clinical Neurodynamics :

Standard Neurodynamics for Lower Quarters

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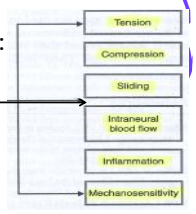
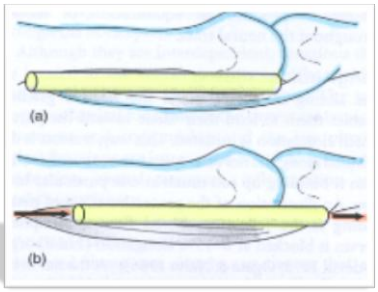
Introduction

Name :「Neurodynamic Tests」

- Multidemensional and dynamics
- Tension test
- Neural provocation test.
- The effect on neural tissues：

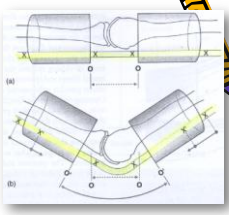


Sliding of Nerves



Nerves move

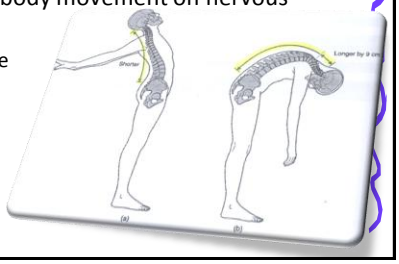
- Movement of joints
  - Convergence
  - Nerve bending



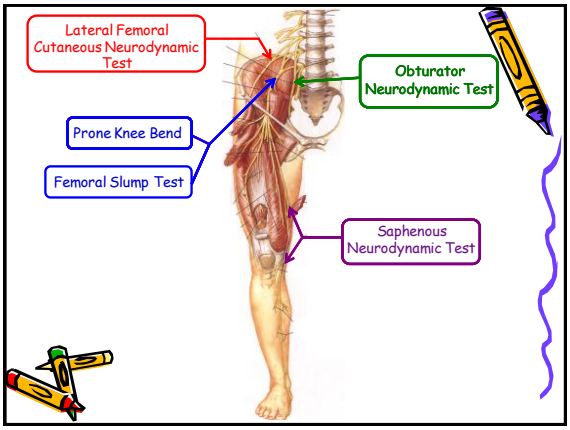
- Movement of innervated tissues
  - Increase the distance between the two end points in the nervous system

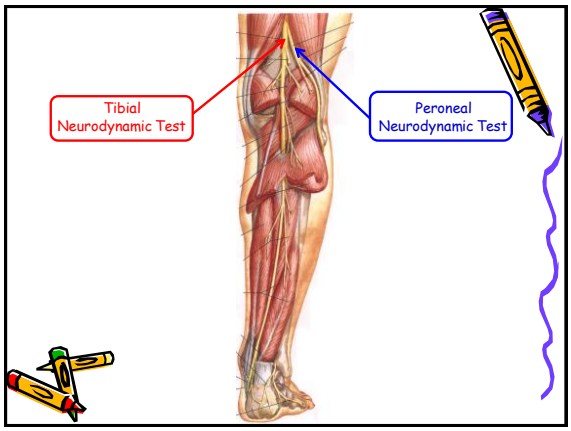
Specific neurodynamics

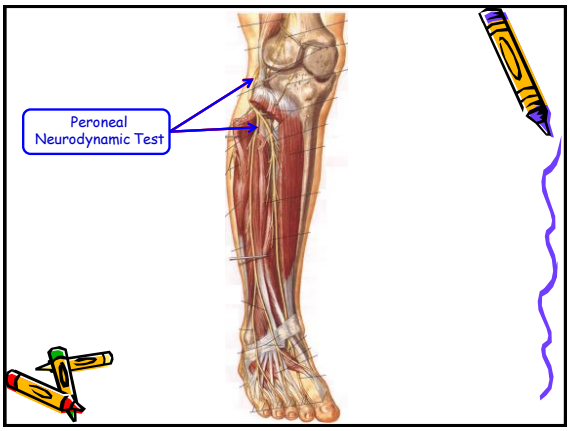
- Specific neurodynamics is defined as local effects of body movement on nervous system.
  - The spine

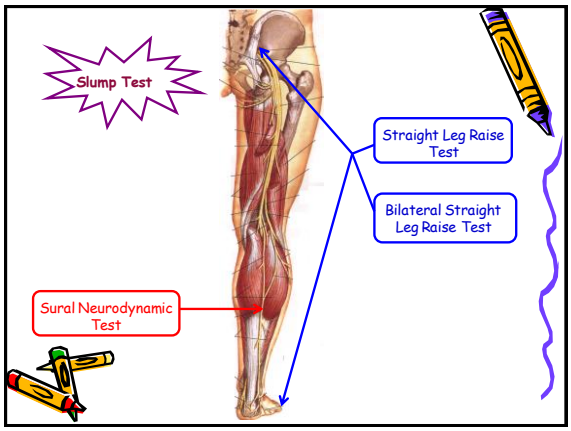


Anatomy









TECHNIQUE

Straight Leg Raise (SLR) Test

- Indications
  - ✓ Post. & lat. aspect of the lower quarter
  - ✓ Thoracic spine
  - ✓ Heel pain


Figure 7.33 Technique of straight leg raise.

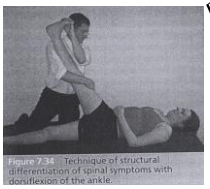


Figure 7.34 Technique of structural differentiation of spinal symptoms with dorsiflexion of the ankle.

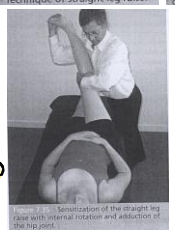


Figure 7.35 Sensitization of the straight leg raise with internal rotation and adduction of the hip joint.

Sensitization :
Internal rotation
+
Adduction

Normal response to SLR

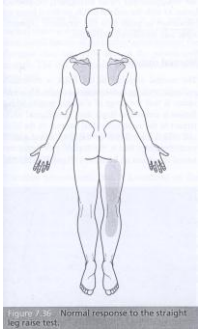
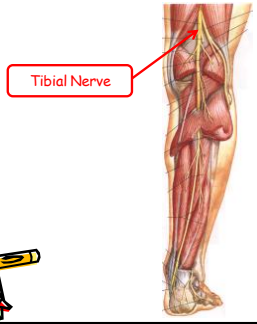


Figure 7.36 Normal response to the straight leg raise test.

Tibial Neurodynamic Test (TNT)



Tibial Neurodynamic Test (TNT)

- Indications
  - ✓Calf pain
  - ✓Heel pain
  - ✓Plantar fasciitis
  - ✓Pain in the plantar aspect of the foot

Dorsiflexion
+
Eversion


Figure 7.39 Distal hand hold for the tibial neurodynamic test.


Figure 7.40 Starting position for the tibial neurodynamic test.

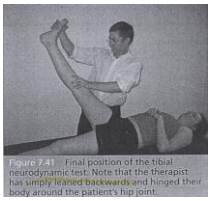


Figure 7.41 Final position of the tibial neurodynamic test. Note that the therapist has simply leaned backwards and hinged their body around the patient's hip joint.

Normal response to TNT

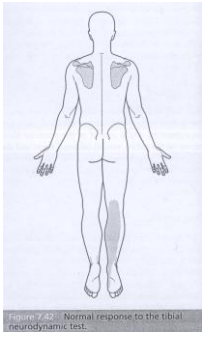
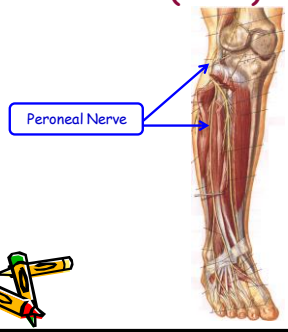


Figure 7.42 Normal response to the tibial neurodynamic test.

Peroneal Neurodynamic Test (PNT)



Peroneal Neurodynamic Test (PNT)

- Indications
  - ✓Anterolateral leg & ankle & dorsal foot areas
  - ✓L4-5 radicular pain

Plantarflexion + Inversion

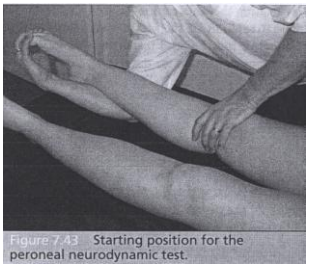


Figure 7.43 Starting position for the peroneal neurodynamic test.

Normal response to PNT

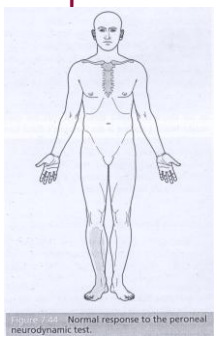


Figure 7.44 Normal response to the peroneal neurodynamic test.

Slump Test

- Indications
  - ✓Headache
  - ✓Pain anywhere in the spine or pelvis
  - ✓Lower limb problems located in the distribution of the sciatic n. & its extensions
  - ✓Assessment of the lumbar spine

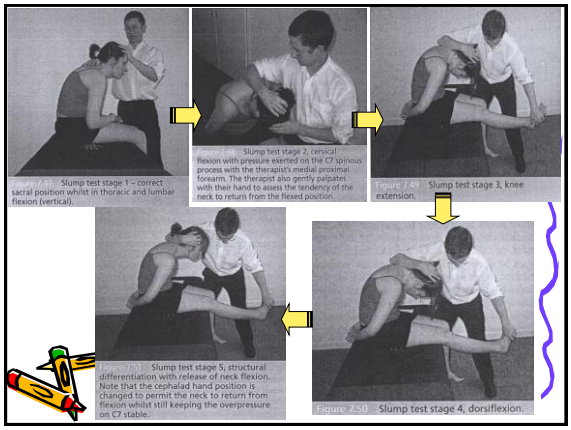
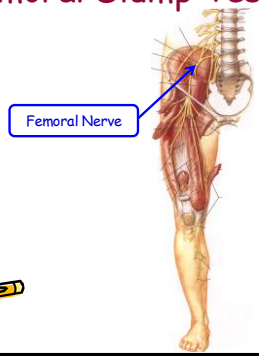


Figure 7.47 Slump test stage 1 – correct sacral position whilst in thoracic and lumbar flexion (vertical).
Figure 7.48 Slump test stage 2, cervical flexion with pressure exerted on the C7 spinous process with the therapist's medial proximal forearm. The therapist also gently palpates with their hand to assess the tendency of the neck to return from the flexed position.
Figure 7.49 Slump test stage 3, knee extension.
Figure 7.50 Slump test stage 4, dorsiflexion.
Figure 7.51 Slump test stage 5, structural differentiation with release of neck flexion. Note that the cephalad hand position is changed to permit the neck to return from flexion whilst still keeping the overpressure on C7 stable.

Normal response to Slump Test

- Seated position – no symptoms
- Thoracic & lumbar flexion – stretching in the mid-thoracic region
- Knee extension – stretching in the post. thigh & knee region extend to upper calf
- Dorsiflexion – ↑ post. thigh & knee symptoms
- Release neck flexion – ↓ post. thigh & knee symptoms; ↑ ROM of knee flexion & dorsiflexion

Femoral Slump Test (FST)



Femoral Slump Test (FST)

- Indications
  - ✓Lumbar hip
  - ✓Groin thigh
  - ✓knee

Knee flexion + Hip extension

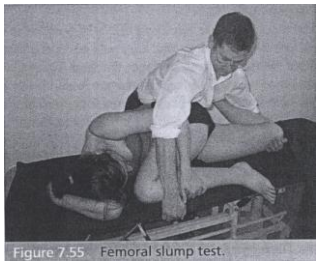
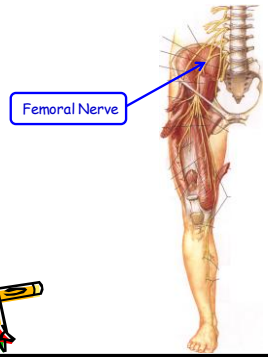


Figure 7.55 Femoral slump test.

Normal response to FST

- Stretching in the anterior thigh

Prone Knee Bend (PKB)



Prone Knee Bend (PKB)

- Indications
  - ✓Low back pain
  - ✓Symptoms follow the course of femoral n.
    - Inguinal & hip regions
    - Thigh & knee pain

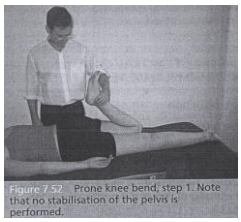


Figure 7.52 Prone knee bend, step 1. Note that no stabilisation of the pelvis is performed.

Figure 7.53 Prone knee bend, step 2 with pelvic stabilisation, producing a bias to the neural structures. Step 3 is to repeat the pressure over the pelvis with the lower limb returned to the neutral position.

Normal response to PNB

- Stretching in the anterior thigh region