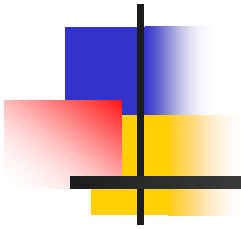


# NERVE CONDUCTION SENSORY TESTING



Randall C. Cork, MD, PhD; Shweta Khedlekar, BS; Sanjay Madnani, MD  
Ahmad Elsharydah, MD; Paul Mayes, MD

Department of Anesthesiology  
Louisiana State University Health Sciences Center, Shreveport, LA USA 71130



# Introduction

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- Nerve conduction sensory (NCS) test helps to diagnose severity, location & distribution of radiculopathy or neuropathy.
- Non-invasive method.
- Measures sensory threshold using neuroselective frequency to test Type A-delta fibers.
- Abnormally high NCS measures indicate significant nerve conduction loss.
- Abnormally low NCS indicate hyperesthetic state that corresponds with inflamed, irritated or regenerating nerves.

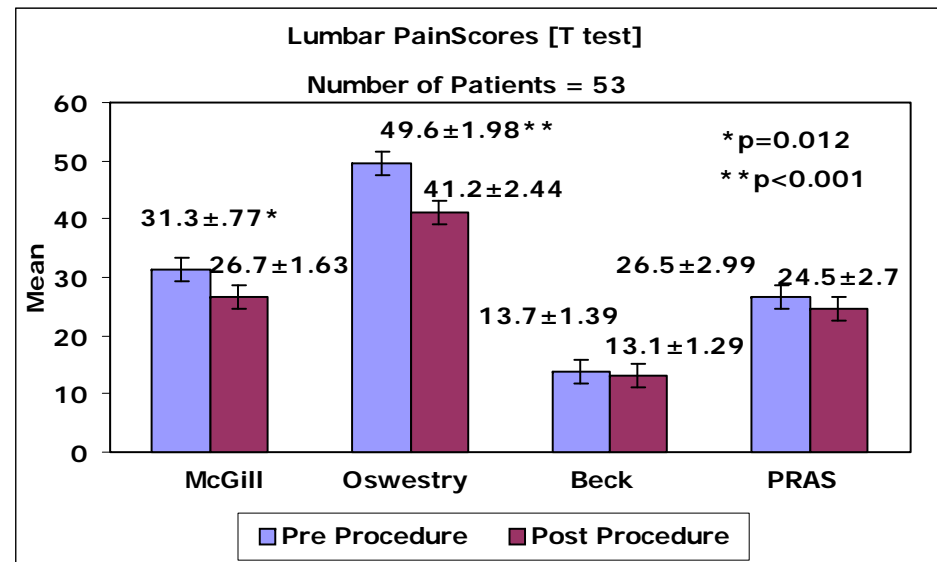
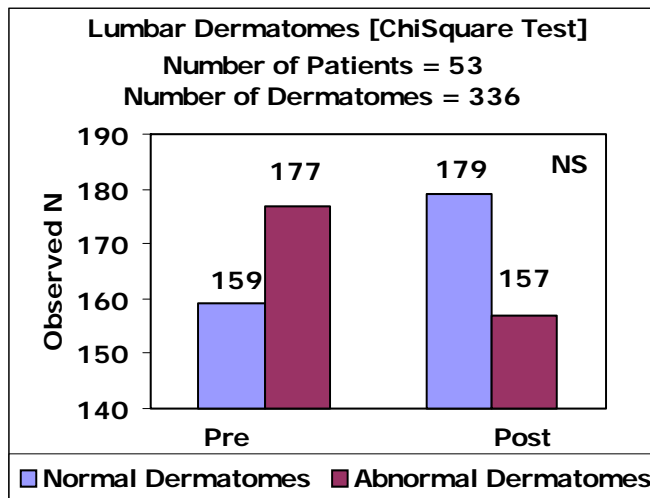
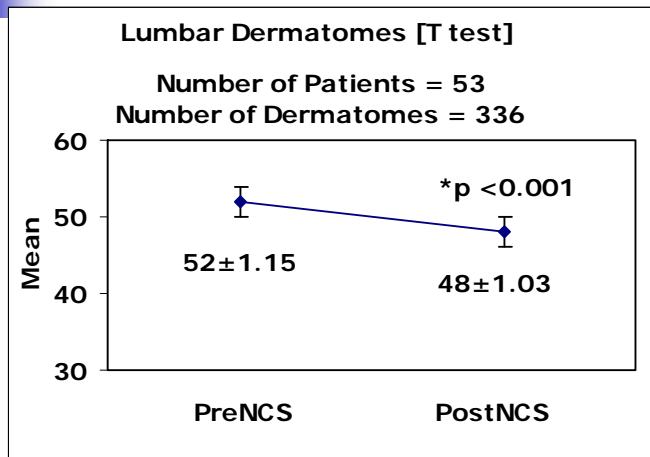


# Methods

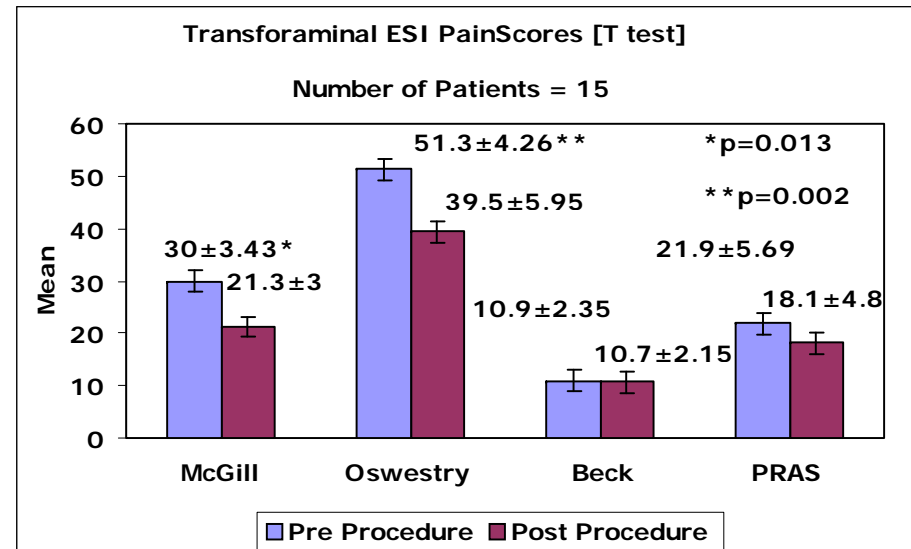
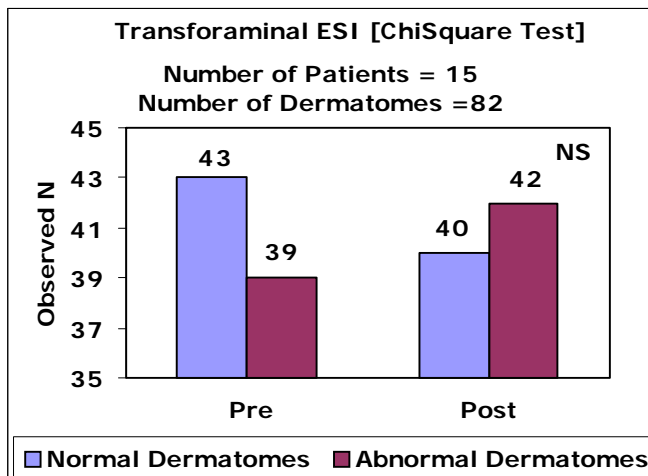
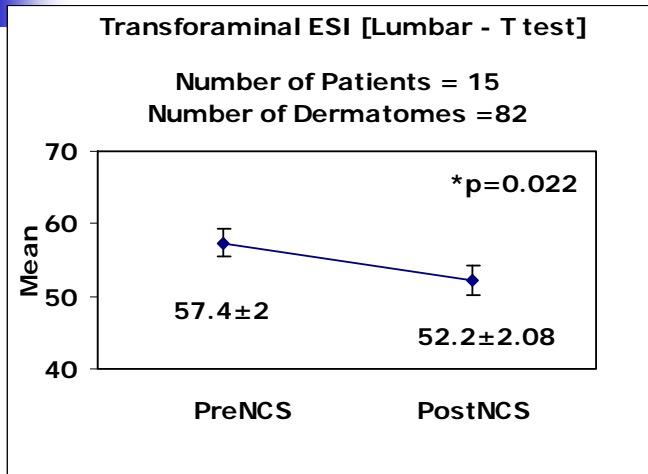
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- NCS tests are performed on patients with lumbar pain, before & after interventional pain procedures.
- Time period between pre & post procedure NCS test = 2 weeks.
- Patients complete forms to communicate their intensity of pain, functional impairment, depression & anxiety.
- Patient charts undergoing procedures at the LSUHSC Pain Clinic between Sept 2005 & Feb 2006 reviewed.
- Data analyzed using Student's Paired t-test & Chi-square tests (significance defined as  $p < 0.05$ ).

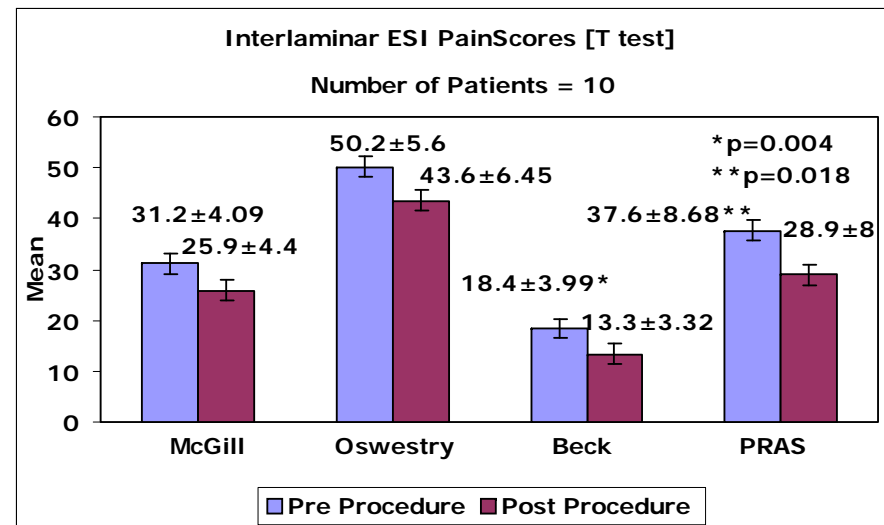
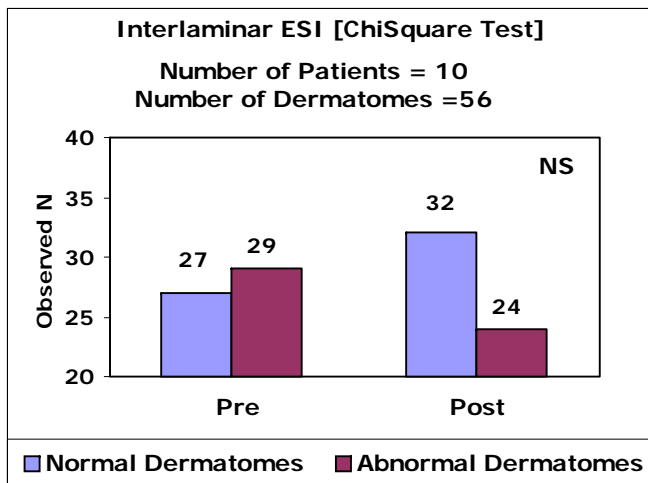
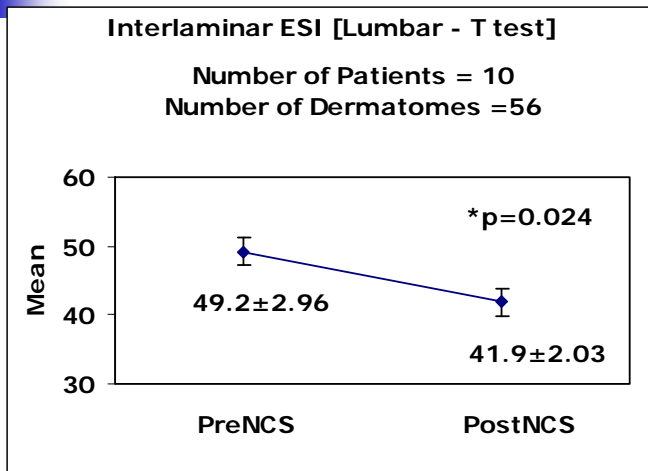
# LUMBAR DERMATOMES



# TRANSFORAMINAL ESI [LUMBAR]



# INTERLAMINAR ESI [LUMBAR]





# Results

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- Pain charts of 53 patients reviewed.
- Significantly decreased NCS scores after lumbar interventional procedures ( $p < 0.001$ ).
- Lumbar Pain Patients - Paired T-test indicated significant changes in McGill Pain Questionnaire & Oswestry Disability Questionnaire with  $p = 0.012$  and  $p < 0.001$  respectively.



## Results Contd.

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- Transforaminal ESI & Interlaminar ESI resulted in decreased NCS ( $p < 0.05$ ).
- No significant change in number of abnormal dermatomes.
- Pain intensity (McGill) & functional (Oswestry) pain scores significantly reduced following Transforaminal ESI, but not Interlaminar ESI.
- Depression (Beck) & anxiety (PRAS) significantly reduced following Interlaminar ESI, but not Transforaminal ESI.



# Conclusion

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- NCS - direct sensory test.
- Assesses peripheral sensory nervous system by measuring voltage intensity which initiates membrane potential changes to propagate nerve impulses.
- Physician can identify a target & assess results of interventional pain procedures.



## Reference

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- Cork R C, Saleemi S, Hernandez L, Schult T & Brandt S. Predicting Nerve Root Pathology With Voltage-actuated Sensory Nerve Conduction Threshold. The Internet Journal of Anesthesiology. 2002; Volume 6, Number 1.