

The American Association of Electrodiagnostic Medicine (AANEM) recent position statement, “Proper Performance And Interpretation of Electrodiagnostic Studies”, commented upon the importance of needle EMG testing for the diagnosis of radiculopathy.

At the national AANEM conference in Washington, D.C., on October 14, 2006, John E. Robinton, M.D., One Call Medical’s Medical Director, presented a poster presentation that supported the AANEM’s position statement. The abstract’s title was “Diagnosis of Lumbar Radiculopathy by EMG, Nerve Conduction and Late Wave Testing”.

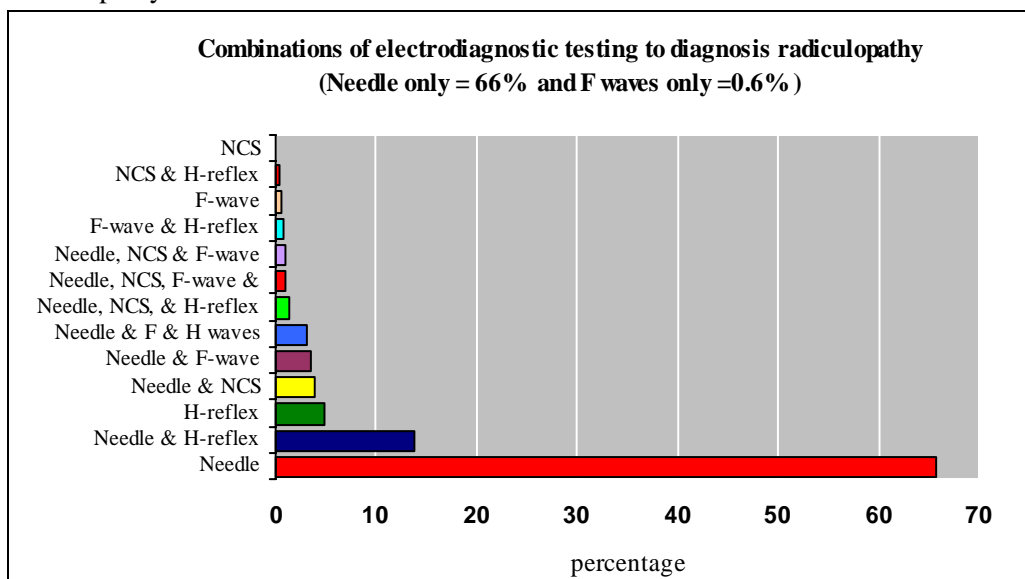
Retrospective review of 1,116 medical reports from OCM’s Neurodiagnostic network was completed. The sample represents

471 physician electromyographers from thirty-one states. A definitive diagnosis of lumbar radiculopathy was required for inclusion in the study. Data was organized by various combinations of electrodiagnostic testing part(s) including, NCS, late waves (F and H) and/or the needle EMG.

The most frequent category used for diagnosis of lumbosacral radiculopathy was **abnormal needle EMG**; this occurred in **65.66%** of the cases (see Figure 1). Abnormal EMG and abnormal H-waves were seen in 13.84% of the cases and isolated abnormal H-waves were seen in 4.85% of the cases. Abnormalities seen on both needle EMG & F-wave testing in a study or abnormal F-waves as the sole abnormality on the test were seen in only 3.43% and 0.62% of cases respectively.

The conclusion of the study is that needle EMG is imperative for the diagnosis of radiculopathy. Despite articles suggesting the importance of F-wave testing, the utilization of F-wave was of limited assistance in the diagnosis of radiculopathy.

Needle EMG is imperative for diagnosis of radiculopathy!



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Q: What is Radiculopathy?

A: Radiculopathy is a disease or compression of the nerve root. The term is used for any process involving single or multiple nerve roots in the cervical, thoracic or lumbar spine.

Q: What are the symptoms of radiculopathy?

A: Muscular weakness

- Pain that spreads down the arm or leg
- Numbness
- Decreased Sensation
- Tingling/ pins and needles sensation
- Burning sensations

Q: What are the causes of radiculopathy?

A: Anything that injures or compresses the nerve root

- Arthritis
- Spinal cord lesions
- Diabetes

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Ask the Medical Advisors

Q: What muscles would be tested for Radiculopathy?

A: For **cervical** radiculopathy studies, we suggest the **MINIMUM** of the following muscles be studied:

- 1) a C5 axillary nerve muscle (Deltoid);
- 2) a C5/6 musculocutaneous nerve muscle (Biceps);
- 3) two C6-7 radial nerve muscle (Triceps **and** Ext. Carpi Radialis, Ext. Carpi Ulnaris, Ext. Digitorium or Brachioradialis);
- 4) a C6-7 median nerve muscles (Pronator Teres, Flex Carpi radialis or Flex Pollicis Longus);
- 5) a C8/T1 median hand muscle (APB, Opponens Pollicis or Flex. Poll. Brev.);
- 6) a C8/T1 ulnar hand muscle (FDI or Abd. Digit Min.);
- 7) the cervical paraspinals.

For **lumbar** radiculopathy studies, we suggest the **MINIMUM** of the following muscles be studied:

- 1) a femoral nerve L3-4 muscle (Quadriceps);
- 2) a superior gluteal nerve muscle;
- 3) two peroneal nerve muscles in the foreleg (Tibialis Anterior **and** Peroneus Longus or Extensor Hallucis Longus),
- 4) a tibial L5 muscle in the calf (Tibialis Posterior or Flex. Digit. Long.);
- 5) a S1-S2 tibial muscle in the calf (Soleus or Medial Gastrocnemius)
- 6) the lumbar paraspinals.

For both **cervical and lumbar** radiculopathy studies, EMG examination of additional muscles is indicated:

- 1) if there is focal weakness of muscles not listed above and
- 2) if abnormalities are noted in the initial set of muscles examined.

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