**Electromyography (EMG) and Nerve Conduction Velocity (NCV)**

Electromyography and Nerve Conduction Velocity procedures are available at Western Neurological Associates. Neurologists use these forms of electrodiagnostic testing to diagnose diseases of the nerves and muscles.

**What is an EMG Test?**

An EMG test measures the electrical activity of muscles. For this procedure small needle electrodes are inserted through the skin into the muscles. Other electrodes may be taped to the skin also. The electrical activity of these muscles is recorded while the muscles are in a resting position and again when the muscles are contracted.

**How Long is an EMG Test and Will it Hurt?**

An EMG test is performed sitting or lying down in a comfortable position and usually takes 30 to 60 minutes. There may be some discomfort as the electrodes are inserted which may result in some tenderness for a short time after the EMG procedure has been completed.

**What is an NCV Test?**

An NCV test measures the speed and intensity of electrical impulses as they travel along the nerves. It also measures the time it takes for the muscles to react to the electrical signals. During an NCV test, patch-like electrodes (similar to the ones used for EMG testing) are placed on the skin over the nerves and muscles in different areas. Stimulating electrodes (the “stimulator”) are held against the skin sending very mild electrical impulses through the nerves. This electrical activity is recorded by the other electrodes. The distance between electrodes and the time it takes for the electrical activity to travel this distance is used to calculate the nerve conduction velocity.

**How Long is an NCV Test and Will it Hurt?**

NCV testing is performed sitting or lying down depending on the area being tested and lasts 15 to 30 minutes. Most people experience a tingling sensation during the procedure and some people may experience slight, temporary pain or discomfort.

**What Do EMG and NCV Tests Show?**

EMG and NCV tests are used to detect the presence of nerve and muscle impairment. EMG/NCV testing helps in the diagnosis of:

- Pinched nerves such as carpal tunnel syndrome
- Primary muscle disorders such as muscular dystrophy
- Herniated discs in the neck and lower spine

Degenerative muscle conditions such as amyotrophic lateral sclerosis (ALS – Lou Gehrig’s disease)