## EMG Findings

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Normal</th>
<th>Neurogenic Lesion</th>
<th>Myogenic Lesion</th>
</tr>
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<tr>
<td>EMG</td>
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<tr>
<td>Steps</td>
<td>Normal</td>
<td>Increased</td>
<td>Normal</td>
</tr>
<tr>
<td>Insertional Activity</td>
<td>Normal</td>
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<td>Myotonic Discharge</td>
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<td>Spontaneous Activity</td>
<td>Fibrillation Positive Wave</td>
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</tr>
<tr>
<td>Motor Unit Potential</td>
<td>0.5-1.0 mv 5-10 ms</td>
<td>Large Unit Limited Recruitment</td>
<td>Normal</td>
</tr>
<tr>
<td>Interference Pattern</td>
<td>Full</td>
<td>Reduced Fast Firing Rate</td>
<td>Reduced Slow Firing Rate</td>
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<tr>
<td></td>
<td></td>
<td>Full Low Amplitude</td>
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</table>
DISORDERS WITH MYOTONIC DISCHARGES

With Clinical Myotonia

Myotonia Dystrophica
Myotonia Congenita
Paramyotonia Congenita
Hyperkalemic Periodic Paralysis
Proximal Myotonic Myopathy
Without Clinical Myotonia

Myositis
Acid Maltase Deficiency
Cytoplasmic Body Myopathy
Hyperthyroidism
Hypothyroidism
Familial Granulovacuolar Lobular Myopathy
Malignant Hyperpyrexia
Multicentric Reticulohistiocytosis
Myopathies induced by:
  Glycyrrhizin
  Hypocholesterolemic agent
  Disagzocholesterol
  Colchicine
LOWER MOTOR NEURON LESION

III Anterior Horn Cells
Poliamyelitis or
A.L.S.

IV Peripheral Nerves
Neuropathy or
Trauma

Denervated muscle fibers discharge
spontaneously (Canon’s Law)

Regeneration from intact axons results
in “larger” motor units

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<td>2. Resting Activity</td>
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<td>3. Motor Units</td>
<td>0.5-1.0 mV 5-10 ms</td>
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<tr>
<td>4. Interference Pattern</td>
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</table>

- Fibrillation
- Pos. Potential
- Giant Unit

8-22-80

a. 

b. 

c. 

d. 

e. 

f. 

0.2 mV
50 ms

0.2 mV
10 ms

0.1 mV
2 ms
### EMG Findings

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**Note:**
- **Normal**
- **Increased**
- **Fibrillation Positive Wave**
- **Myotonic Discharge**
- **Polymyositis**
- **Fast Firing Rate**
- **Slow Firing Rate**
- **Low Amplitude**

**For Further Details:**
- [Changing waveform of single fiber discharge](#)
複合反復放電のメカニズム

接触伝導

#の伝導が途絶すると
急に波形が変わる
運動単位が関連する自発放電

異常放電

Fasciculation Potential
### COMMON TYPES OF SPONTANEOUS DISCHARGES

1) **Fibrillation Potentials and Positive Sharp Waves**
   - Neuropathic Condition
   - Muscular Dystrophy
   - Myositis

2) **Complex Repetitive Discharges**
   - Motor Neuron Disease
   - Radiculopathy
   - Chronic Polyneuropathy
   - Polymyositis
   - Muscular Dystrophy
   - Myxedema
   - Schwarz-Jampel Syndrome

3) **Fasciculation Potentials**
   - Motor Neuron Disease
   - Radiculopathy
   - Entrapment Neuropathy
   - Muscular Pain – Fasciculation Syndrome
   - Healthy Subjects

4) **Myokymic Discharges**
   - Guillain-Barré Syndrome
   - Radiation Plexopathy
   - Spinal Stenosis
   - Nerve Root Compression
   - Bell’s Palsy
   - Multiple Sclerosis
   - Syringobulbia
1) **Muscle Fiber**
- Insertional Positive Waves
- Myotonic Discharge
- Fibrillation Potential
- Positive Sharp Waves
- Complex Repetitive Discharge
- End-plate Noise
- End-plate Spikes

2) **Lower Motor Neuron**
- Fasciculation Potential
- Myokymic Discharge
- Neuromyotonic Discharge
- Cramp Discharges
- Hemifacial Spasm
- Hemimasticatory Spasm

3) **Upper Motor Neuron**
- Stiffman Syndrome
- Involuntary Movement