

CNS Block



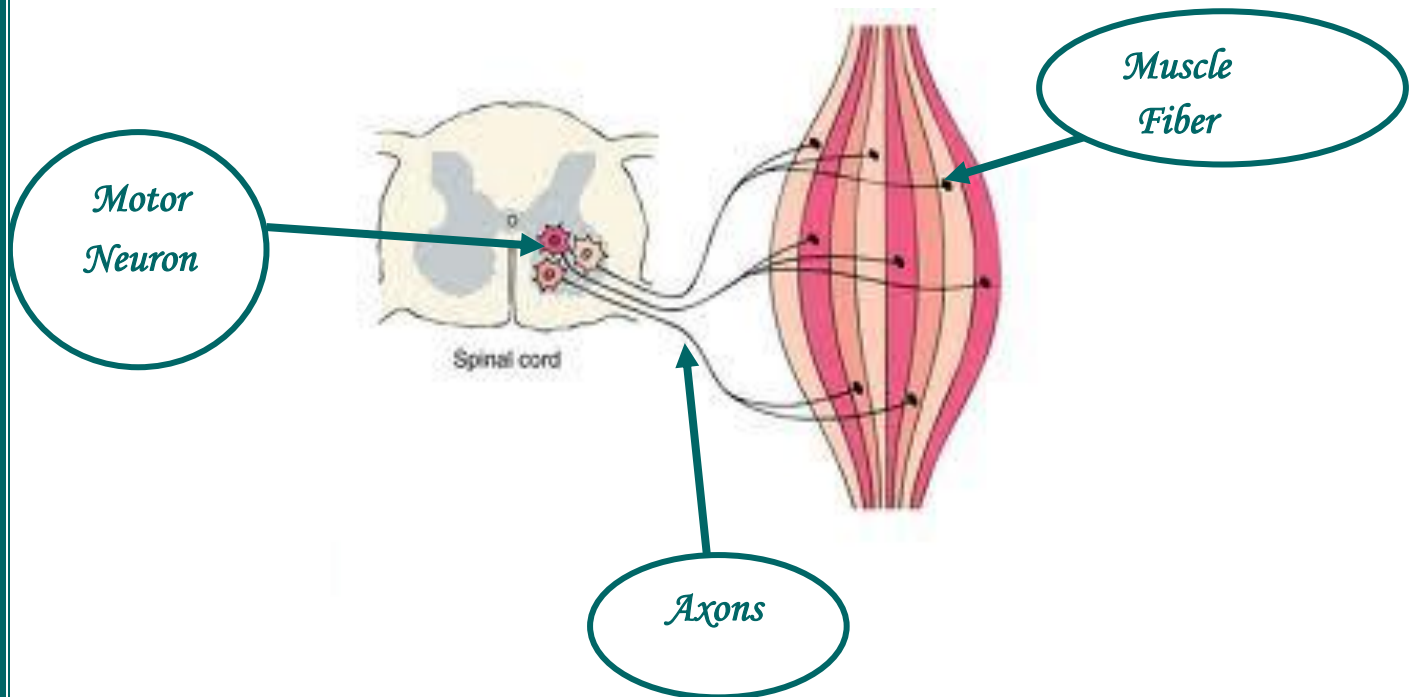
**EMG and motor nerve conduction velocity
study (MNCV)**

**Done By;*

Ayan Saeed _ Samar Emad

**Electromyography (EMG):*

It is a recording of the electrical activity of the skeletal muscle.



Motor Unit

It's a motor neuron and the muscle fibers that are supplied by it.

*EMG analysis:

-Normally the skeletal muscle is silent at rest, spontaneous activity is absent.

-In Neuropathic lesion or in myopathic (active myositis) the following spontaneous activity is noted as;

1-Positive sharp waves.

2-Fibrillation potential;

a- Potentials are generated from a single muscle fiber.

b- Hypersensitivity to acetylcholine.

c- Cannot be felt and cannot be seen by the naked eyes.

3-Fasciculation potential;

a-high voltage, polyphasic and have a long duration potential.

b-Appear spontaneously associated with contraction visible by the eyes and can be felt.

Motor Unit Potentials (MUPs)

- These are the potentials recorded on voluntary efforts, derived from motor units of the muscle.
- The MUPs tests the integrity of the entire motor system which consists of upper and low motor neurons, neuromuscular junction and muscles.

Analysis Of a Motor Unit Potentials (MUP)

<u>*MUP*</u>	<u>*Normal*</u>	<u>*Neuropathic (Neuropathy)*</u>	<u>*Myopathic (Myopathy)*</u>
<u>*Duration m.sec*</u>	10 to 12	longer	shorter
<u>*Amplitude microvolt(μV)*</u>	300 to 5000	larger	smaller
<u>*Phases*</u>	Biphasic/ Triphasic.	Polyphasic.	May be Polyphasic.
<u>Interference*pattern</u>	Full.	Partial.	Full.

_ in this table the questions will be as cases as if we said that;
A man came to the hospital with a symptoms of The EMG records show that the Duration was 15 m.sec and the amplitude was 2500 mV what's the appropriate diagnosis?

Neuropathic (Neuropathy).

_ So, u should memorize the table above ^_^

Motor Nerve Conduction Velocity (MNCV)

-motor nerve conduction velocity of the peripheral nerves may be closely correlated to their functional integrity or to their structural abnormalities.

- Conduction Velocity Abnormalities are Due to ;.

1-Axonal degeneration .

2-Segmental Demyelination.

-in the upper limb the velocity should not be less than 50 m/sec.

-in the lower limb the velocity should not be less than 40 m/sec.

***MNCV**=Distance/L1-L2=m/sec.

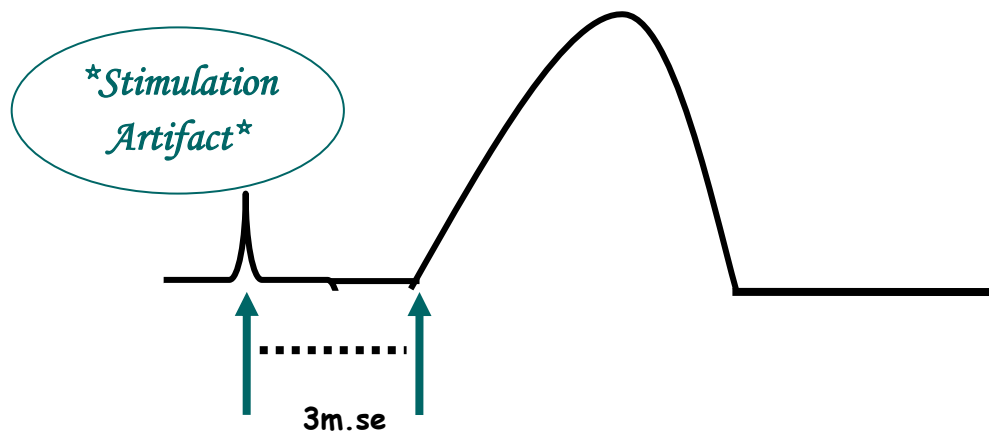
-L1=Is the latency at the Elbow.

-L2= Is the latency at the Wrist.

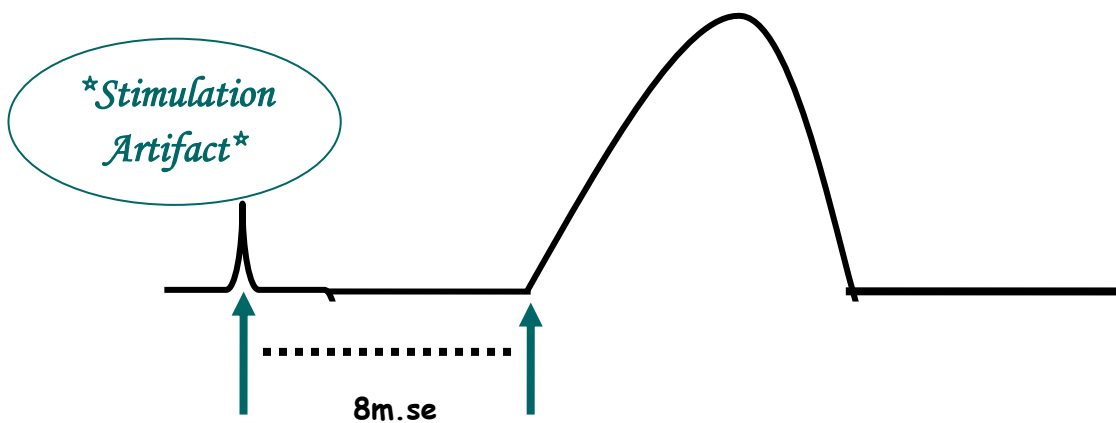
Is the Space from the Stimulus artifact to the beginning of the Action Potential in the given graphs (page6)..

*in the patients with muscular weakness , muscle atrophy , traumatic or metabolic neuropathy, these tests are considered as an extension of the physical examination rather than a simple laboratory procedure.

*Stimulation At The wrist;



*Stimulation At The Elbow;



*Distance=30cm, L1=8 m.sec, L2=3m.sec...

-MNCV= $(30 \times 10) / (8 - 3) = 300 / 5 = 60 \text{ m/sec.}$

*Note; the distance should be in mm, not in cm *

★ Good Luck ★