-action potential: is the wave of negativity will pass from one site to the adjacent site and this will continue till the end of the nerve fiber.

-in the site of stimulation Na channel is opened, Na will pass and will be distributed in nerve fiber(this process called local current theory: this is a current that occur locally and gradually, it passes from area to another).

*this positive charge will equilibrate some of negative charge, so it will shift the the R.M.P from (-70 - -90) to -55 and that will produce opening of another Na channel in the adjacent area forward and backward and then Na will gush in the next step and so on.

- orthodromic in motor nerve:

-From cell body to periphery (N.M.J)

-it produce a function(like contraction of the muscle)

- antidromic:

-from periphery to cell body. -no function

-in sensory fiber: the impulse started from the periphery to CNS(or to cell body).

-the definite explanation of orthodromic is the direction which produce a function.

Transmission of action potential

-In myelinated nerve: A.P is jumping from node of Ranvier to the next one.

-in non myelinated nerve: all area of membrane should be excited.

*why the narrow nerve is slower in transport while the wide is faster?

-because the increasing in diameter will be rapid transport.

*how can we see the travelling of impulse along nerve fiber?

-by recording of A.P

*extra-cellular electrode:

Applying the two electrodes of galvanometer on the surface.

-in bi-polar electrode always we have biphasic action potential

Nerve conduction velocity

-you should know: increasing myelination is more effective to increase conduction velocity than increasing in diameter.

-there is a relationship between(intensity and duration):-

Increasing intensity need short duration

Decreasing intensity need long duration

*rheobase: a level which we excite.(each nerve fiber has single rheobase)

-threshold: intensity required to excite the tissue(without determine duration)

-rheobase: intensity required when we have highest duration.

-each nerve fiber has many threshold depending on duration of impulse.

-threshold isn't constant for nerve fiber while rheobase is constant.

-chronaxie: duration which is needed to excite the tissue when we are using double the rheobase.

-curare: material from plant and causes paralysis for animals.

-diabetic peripheral neuropathy. causes:

1-decrease in nerve conduction velocity.

2-damage of nerve fiber. 3-pateints don't feel any pain.

-during A.P:

1-once there is increase in R.M.P, it will reach near firing level (increase in excitability).

2-once there is opening in Na channel, Na will pass inside(decrease in excitability)

Because all Na is inside the cell so if we do stimulation , it hasn't Na to enter.

-absolute refractory period: we can never produce excitation on nerve fiber.

-relative R.P: giving a stimular with higher intensity(higher impulse), so its can excite the tissue.

-the duration of absolute refractory period depends on the rapidity with which there is a regeneration of R.M.P.

*anafomical + functional classifications are crude.

-type A fiber:

-A χ : *wide diameter *thick myelination

-A β : *narrow diameter *thin myelination

-somatic nerve fiber: myelinated.

-C fiber present in autonomic nervous system, and its responsible for the pain, we cant remove the pain by local anesthic, but this local doesn't affect on motor activity.

-numerical classification

*group (1, 2, 3): *myelinated *vary in diameter

*group (4) C fiber *very narrow in diameter.

-facial nerve is mixed nerve because its contain motor and sensory.(most of nerve fiber is mixed).

-sensory nerve: optical nerve, olfactory nerve.

-measuring N.C.V to see if there is demyelinating or degeneration disease or not.

*how can we measure the N.C.V?

(in sensory)

-using stimulation in a particular place of sensory N.F. and recording the A.P then accounting time by: V=L/T **للمعرفة فقط مش مطلوب حسابات**

(in motor):

-stimulating 2 sites proximal and distal.

-subtracting of time between the first and the second to know the time that need to transmission from first to second site of stimulation then accounting time by:

V=L/T

***axon is jelly like material.