

-the tissue can do its function when its excited(**stimulated**)

The excitable tissue stimulated by: any thing disturb the action potential

(**e.g: electrical, mechanical, chemical, thermal.**)

\*the electrical **stimuli** is the best and using in the tests.

\*mechanical: will cause change of tissue.

\*chemical: will stay for long period.

-the electrical **chan.ge** will travel as action potential and carried to the CNS.

-whether the membrane is related to a **N.** or **M.** but the difference may be in the magnitude.

**\*N. : nerve : motor , sensory**

**\*M. : muscle : cardiac , smooth**

-but its have the same principle: change the electrolytes across the membrane.

-in resting state Na is outside, but in excitation Na is inside.

-the action potential is a wave of negativity charge in the surface of the membrane

(**change potential from negative to positive then to negative again within 1/10000 of a second**)

its very rapid to form normal body movement.

- decreasing in action potential speed will cause disease.
- the potential difference is vary in different excitable tissue.
- the resting state is polarized state(- **inside** , + **outside**).
- if we applied stimulation it will lead to geometrical change in the channel(**opening the channel**).
- the firing level is splitting in amino acid(**conformational change**).
- the activation and inactivation gate is a poly peptide chain
- \*the inactivation gate is to prevent the reflux of **Na**.
- Na channel lead to depolarization and K channel lead to repolarization.
- (**Na-K**) pump will push **3Na** outside and **2K** inside(at the end(**repolarization**))
- at repolarization stage the **Na** channel will close and( **Na-K** )pump will activate.
- voltage gated **Na** channel its open to conduct the A.P
- voltage gated **K** channel open to produce repolarization.
- (**Na-K** )pump activate to correct the repolarization(resting membrane)

- **Na-K** leakage channel open to allow **Na, K** to cross membrane in small amount.
- **K** channels are slowly open and it's a closer for **Na** channels.
- (**Na, K**) its not the only factor that control the excitation,
- (**protein, organic phosphate compound, organic sulfate compound**) is another factors that control the excitation.
- Ca concentration in ECF > Ca concentration in ICF
- Ca is essential in the process of excitation.
- Hypocalcemia  increase the excitability
-  obstetric hand
- how can the action potential travel?
- By many changes that stimulate the nerve fiber.