

# Central Nervous System

**SHEET# 2 - PHYSIOLOGY**

**LEC. TITLE : OVERVIEW OF SYNAPTIC TRANSMISSION**

**WRITTEN BY : WASAN ABABNEH  
RAND BUMADIAN**

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kindly report it to  
[shaghafbatch@gmail.com](mailto:shaghafbatch@gmail.com)



## | Lec. 2 | Physiology ( Dr. Ejlal )

### Overview of Synaptic Transmission

#### ***Slide-4***

the difference between electrical and chemical is the chemical is selectivity /more precise message to specific target while the electrical send message to different targets

#### ***Slide- 9***

either direction mean=Neuron 1 excites Neuron 2 and Neuron 2 excites back Neuron 1 e.g : heart in cvs

#### ***Slide-10***

in presynaptic terminal release neurotransmitters in synaptic cleft and they bind to postsynaptic membrane receptor to initiate a new action potential and this action potential change threshold of synaptic cleft membrane to propagate action potential to dendritic of Neuron

## **Slide-12**

ca<sup>2+</sup> binding protein

(parvalbumin and calbindin)

## **Slide-14**

ion channel :link receptor

Second messenger:G-coupled protein receptor

## **Slide-27**

examples of non peptide neurotransmitters

## **Slide-31 to slide-33**

ما شرحت عنهم بس حكت اقرأوهم لحالكم ومهمين

## **Slide-36**

in resting membrane potential: Na<sup>+</sup>out soma, K<sup>+</sup>in soma, Cl<sup>-</sup>out soma

## **Slide-42**

Gaba or Glycine (presynaptic inhibitory)

### **Slide-43**

مبدأ summation يعتمد على العدد وعلى النوع

العدد: كلما زاد عدد presynaptic synapses that is fired كلما كان action potential strong

وكلما قل عدد presynaptic synapses التي بصير الهم firing كلما كان excitation in postsynaptic e.g spatial action potential summation

النوع: إذا كان عنا 75% من 16 excitation و 25% inhibition رح ينتج عنا excitation action potential in postsynaptic e.g temporal summation

### **Slide-48**

fatigue of Synaptic transmission = protective mechanism

من شأن العمل مره ثانيه rebuilding للاشياء التي صار لها نقصان مثل ...neurotransmitters او nutrients

### **Slide-49**

alkalosis : more H<sup>+</sup> efflux, more K<sup>+</sup> inside

Acidosis : H<sup>+</sup> influx, K<sup>+</sup> efflux

### **Slide-50**

firing and excitation hypoxia لها علاقة ب metabolism تكون أقل  
inhibition وبصير عنا

### **Slide-51**

mainly in chemical synapses

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