**Hand-out 5**

**Removal of neurotransmitters**

* Neurotransmitters are **rapidly removed** from the synaptic cleft once the impulse has been transmitted.

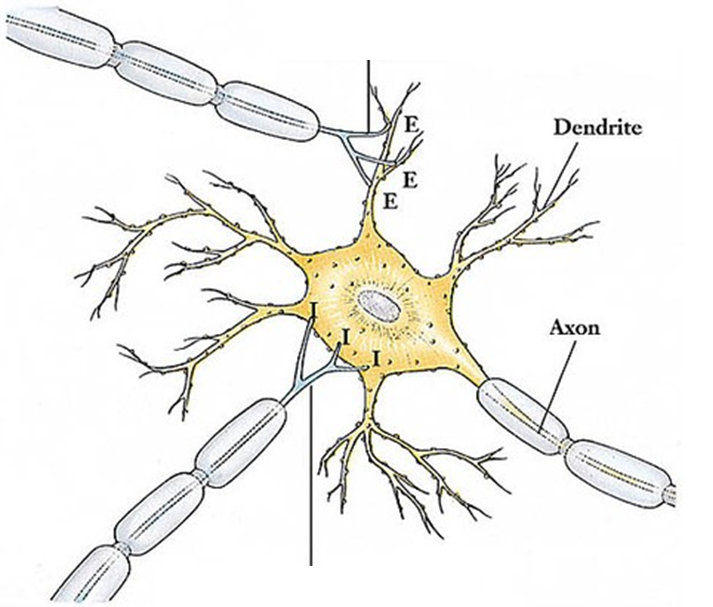
Why is this important?

Removal of neurotransmitters can be achieved in two different ways…

|  |  |
| --- | --- |
| **Method of removal** | **Description** |
|  |  |
|  |  |

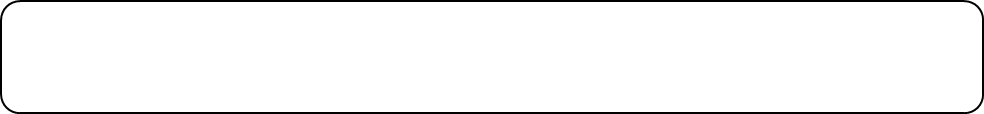
**Excitatory and Inhibitory signals**

* We know that neurotransmitters bind with \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* It is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which determines whether a signal is **excitatory or inhibitory**.
* A neuron can have many \_\_\_\_\_\_\_\_\_\_\_\_\_ with other neurons.
* It is the \_\_\_\_\_\_\_\_\_\_ the excitatory and inhibitory signals that determines the **overall effect** and whether the impulse is passed on (‘fired’).



|  |  |
| --- | --- |
| **Threshold** |  |
| **Weak stimuli** |  |
| **Summation** |  |

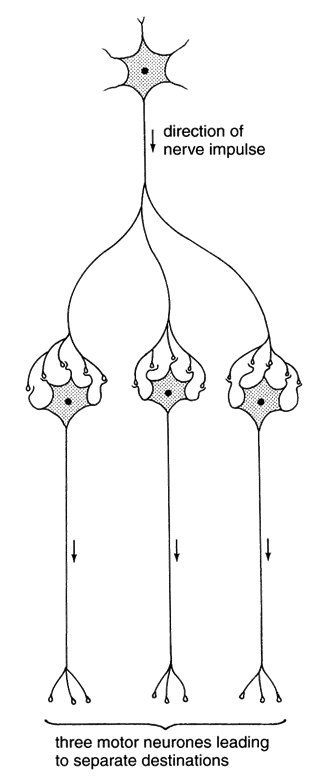
**Summation of weak stimuli**





**Complex Neural Pathways**

These pathways enable the nervous system to carry out its many complex functions.

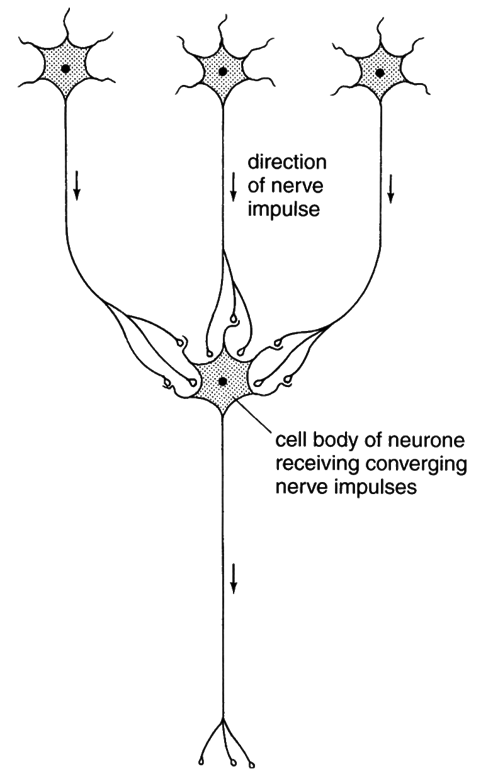


**Diverging neural pathways**

This is where \_\_\_\_\_\_\_\_ neurone is linked to \_\_\_\_\_\_\_\_\_\_\_\_ neurones.

This allows impulses from the CNS to be sent to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (effectors/ muscles) at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Example**:



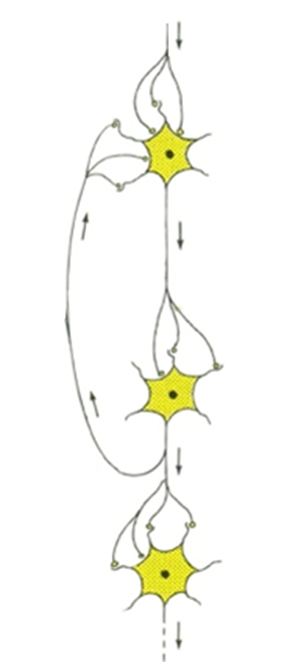
**Converging Neural pathways**

This pathway has **several neurons come together**, and link to \_\_\_\_\_\_\_\_\_\_\_\_ neuron.

This allows \_\_\_\_\_\_\_\_\_\_\_\_\_ from a number of nerve cells to be brought together making it more likely that the \_\_\_\_\_\_\_\_\_\_\_\_\_ is reached and the impulse is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Converging neural pathways increase the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to **excitatory** or **inhibitory signals**.

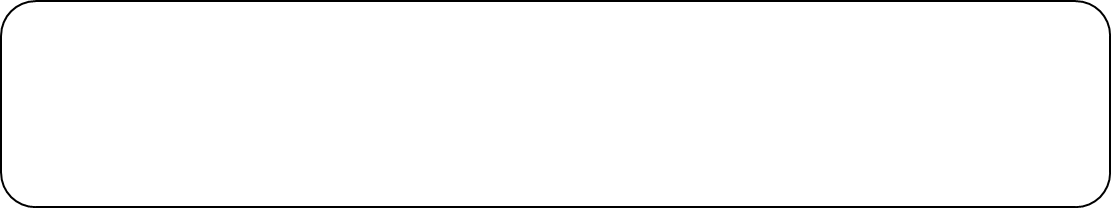
**Example:**

**Reverberating neural pathways**

Neurons \_\_\_\_\_\_\_\_\_\_ in a neural pathway possess axon branches that form **synapses** with neurones \_\_\_\_\_\_\_\_\_\_\_\_ in the pathway.

This can be used to send the impulse \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Impulses can therefore be **recycled** back through the pathway \_\_\_\_\_\_\_\_\_\_\_\_ which brings about repeated activities

**Example:**