



Dr Phil Holland

Topic 1:

**Action potentials and
Synaptic transmission**

Part 2 of 5

Module:

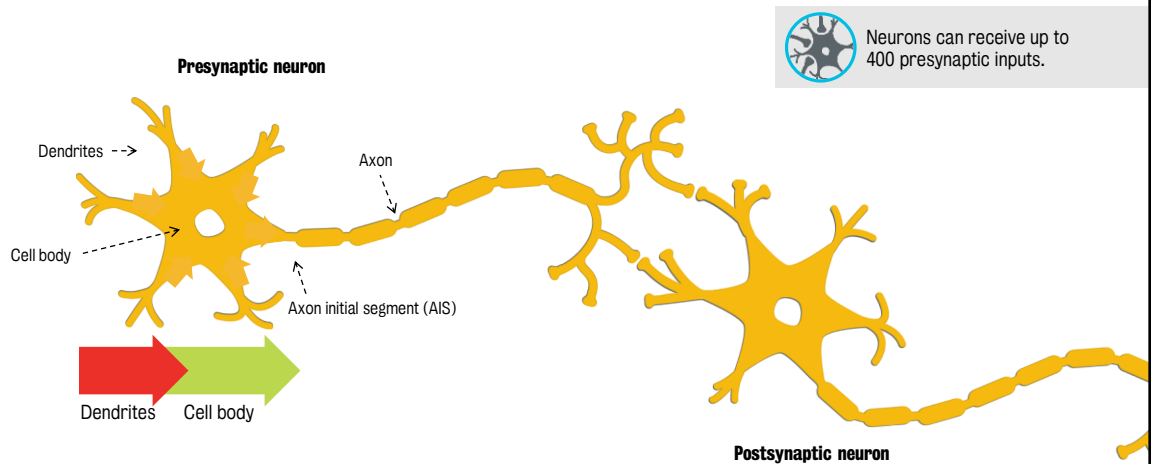
Biological Foundations of Mental Health

Week 3:

Synaptic transmission and neurotransmitter systems

Part 2

Direction of travel from neuron to neuron

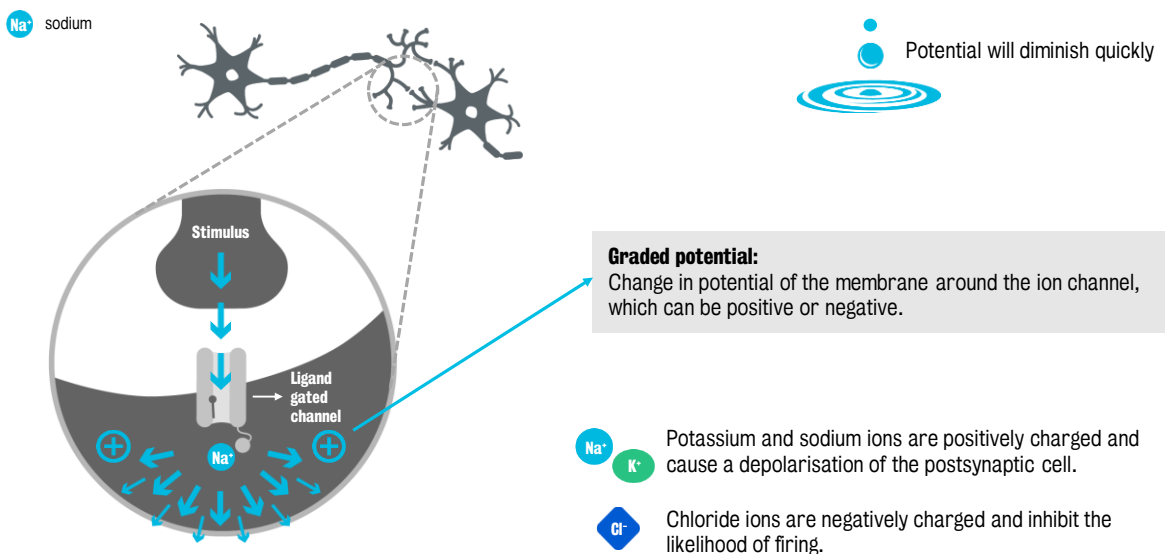


Week 3 Synaptic transmission and neurotransmitter systems

Topic 1: Action potentials and synaptic transmission

3 of 10

The graded potentials

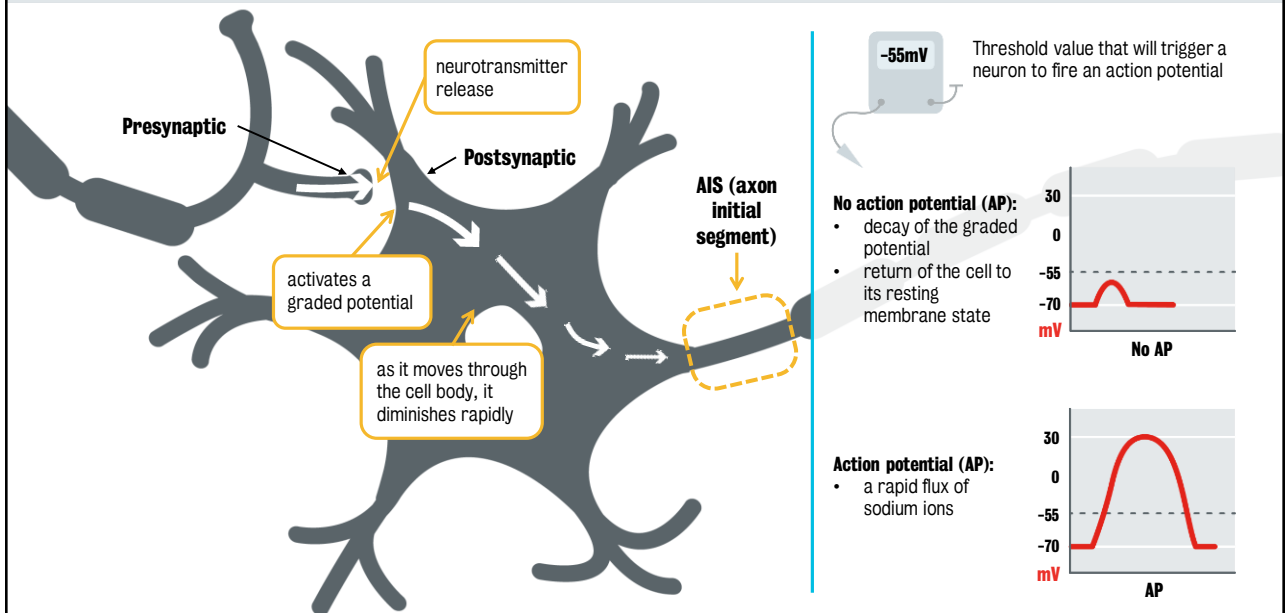


Week 3 Synaptic transmission and neurotransmitter systems

Topic 1: Action potentials and synaptic transmission

4 of 10

Triggering an action potential

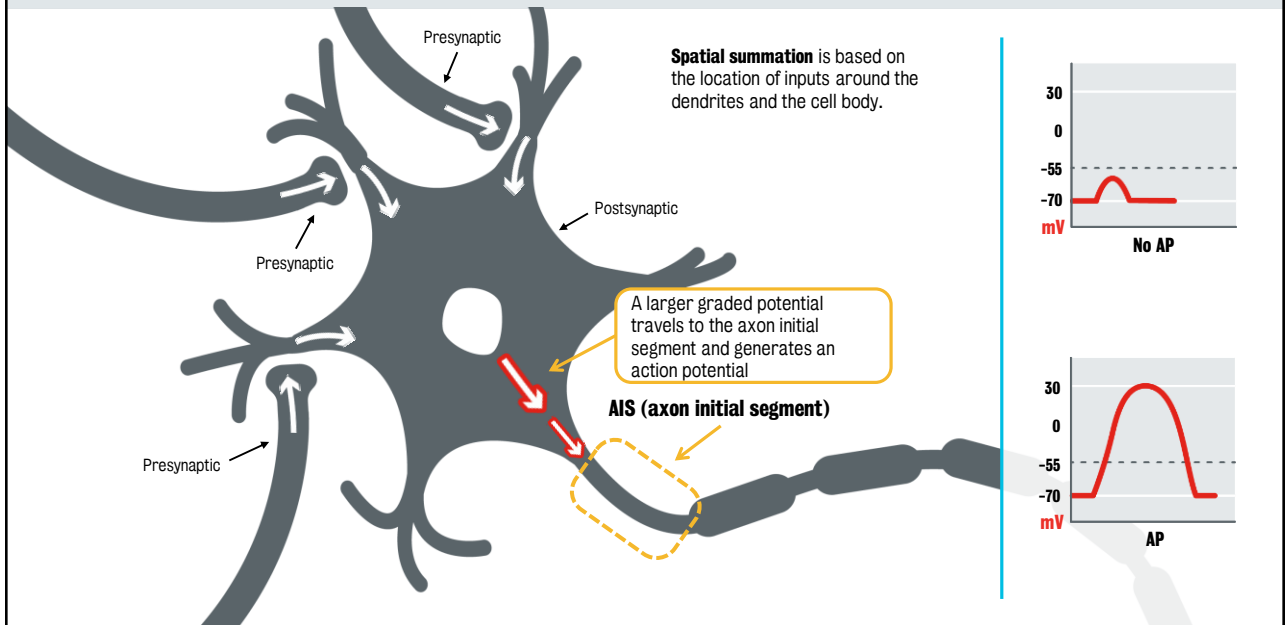


Week 3 Synaptic transmission and neurotransmitter systems

Topic 1: Action potentials and synaptic transmission

5 of 10

Spatial summation of EPSP's



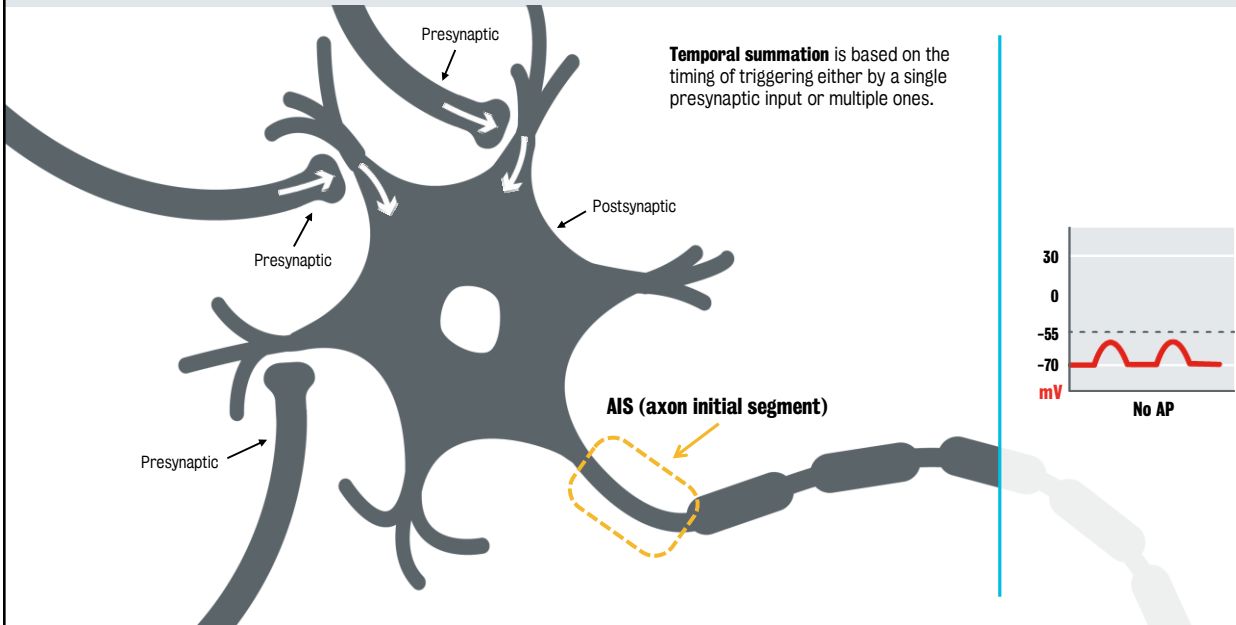
Week 3 Synaptic transmission and neurotransmitter systems

Topic 1: Action potentials and synaptic transmission

6 of 10

Temporal summation of EPSP's (1)

Temporal summation is based on the timing of triggering either by a single presynaptic input or multiple ones.

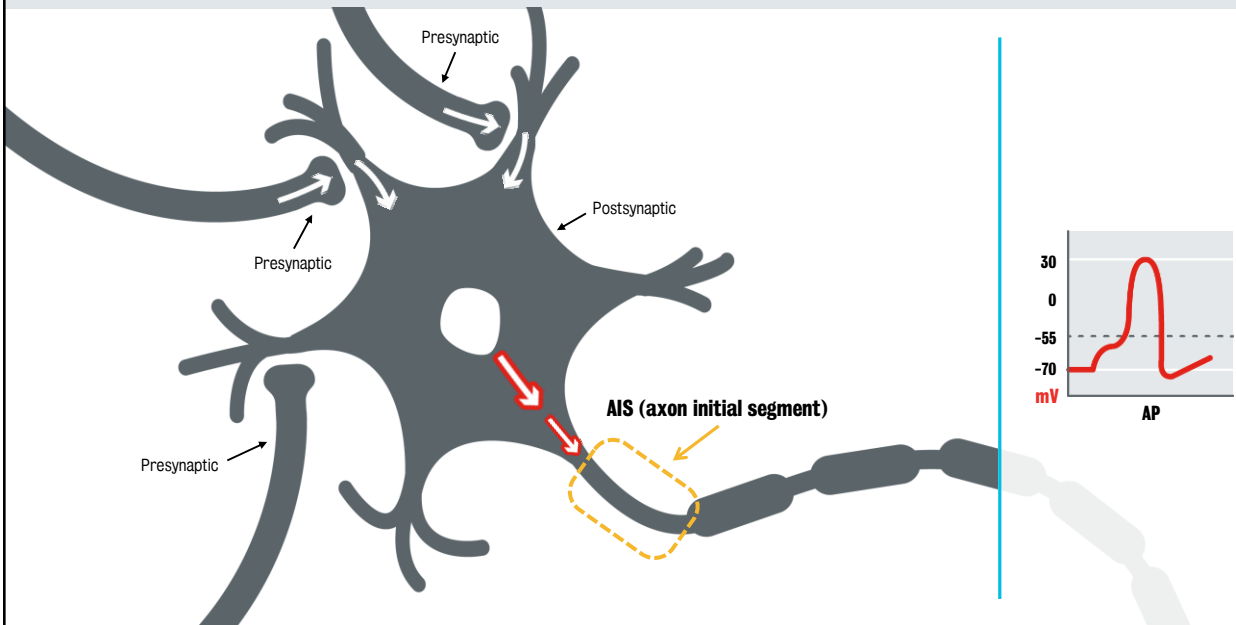


Week 3 Synaptic transmission and neurotransmitter systems

Topic 1: Action potentials and synaptic transmission

7 of 10

Temporal summation of EPSP's (2)



Week 3 Synaptic transmission and neurotransmitter systems

Topic 1: Action potentials and synaptic transmission

8 of 10

Neural integration of EPSP's & IPSP's

EPSP

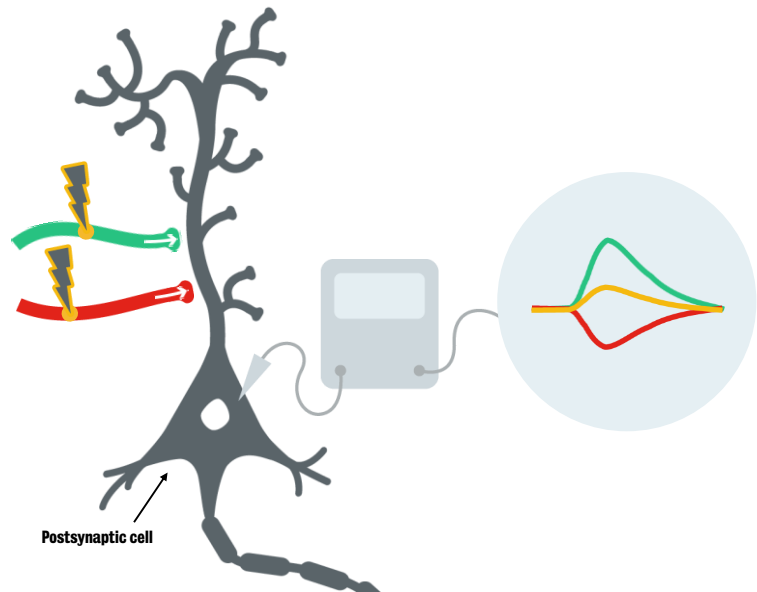
Excitatory postsynaptic potential:

Changes that happen in response to positively charged ions (sodium and potassium ions), which moves the membrane potential towards the triggering threshold for an action potential.

IPSP

Inhibitory postsynaptic potential:

Changes that happen in response to negatively charged ions (chloride ions), which moves the resting membrane potential towards a hyperpolarised state and further away from the triggering threshold.



End of part 2