

# The Body, ELECTRIC

by @teon10

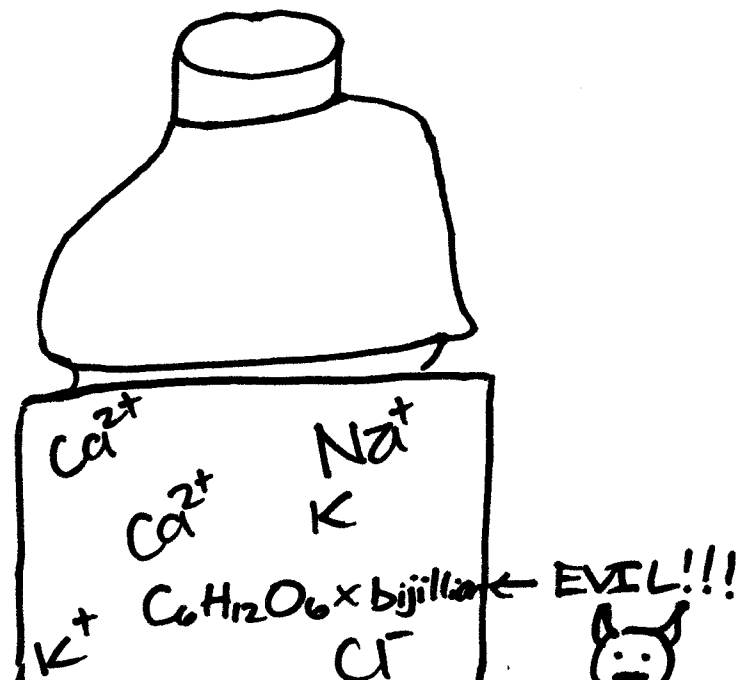


# The body, electric

How does the body communicate and signal?

It's a biochemical process!

Let's first start with electrolytes:

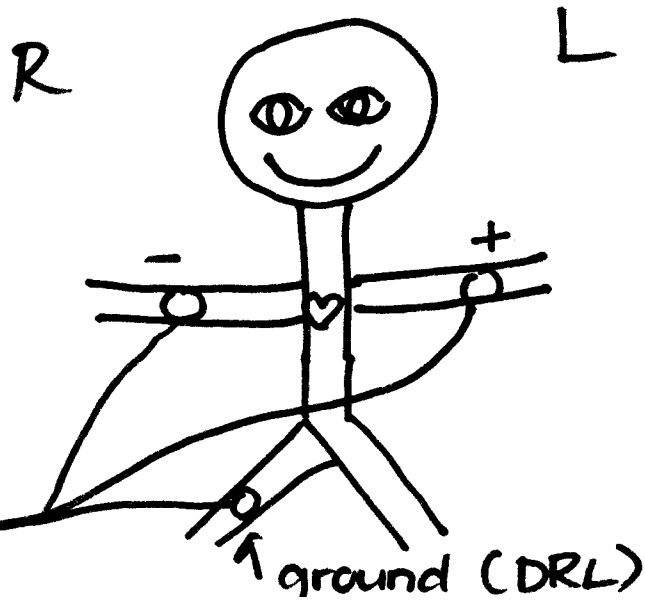
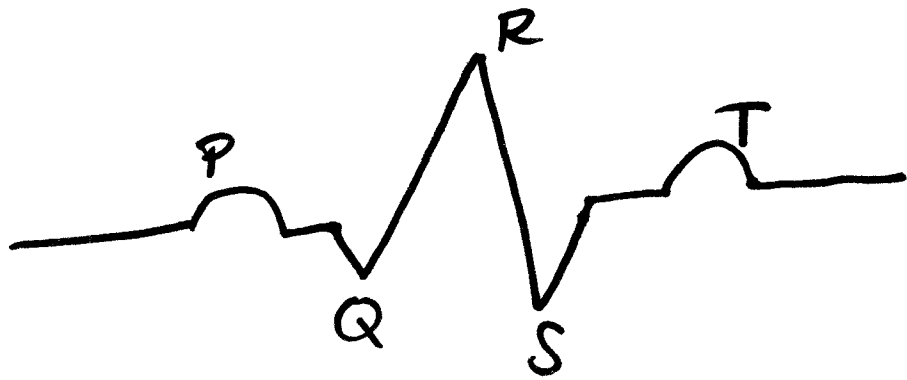


Our body makes tons of super cool bio signals. They are using chemistry to the fullest. These signals are used for thinking (EEG), doing (EMG), seeing (EOG), and living (EKG).

EKG aka ECG

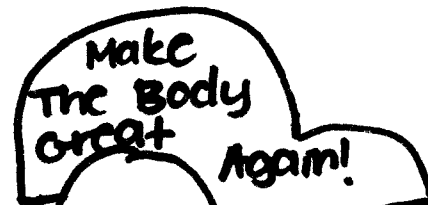
electrocardiography

- measures the different stages of the pumping action of the heart ♡.

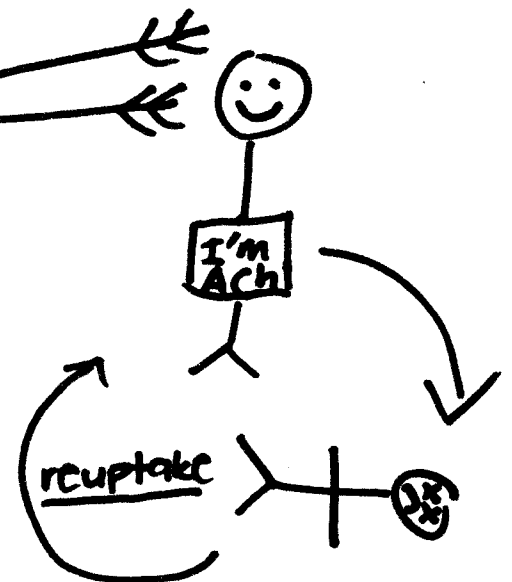


Electrolytes are charged elements. At rest, they are pretty chill, but in action, these minions are instigators!

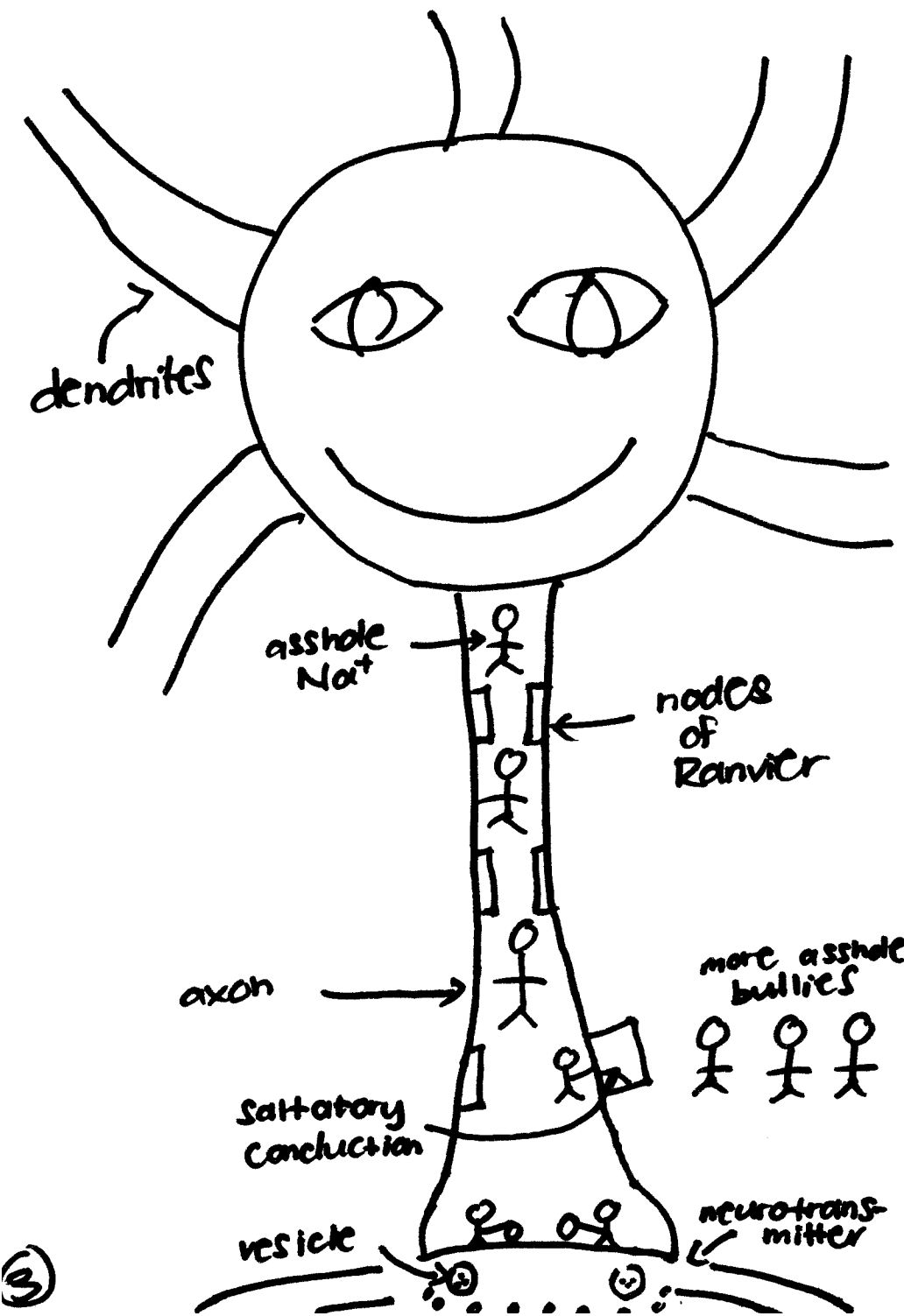
They push around neurotransmitters like bullies.



I'm an asshole  
 $\text{Na}^+$   
Ion

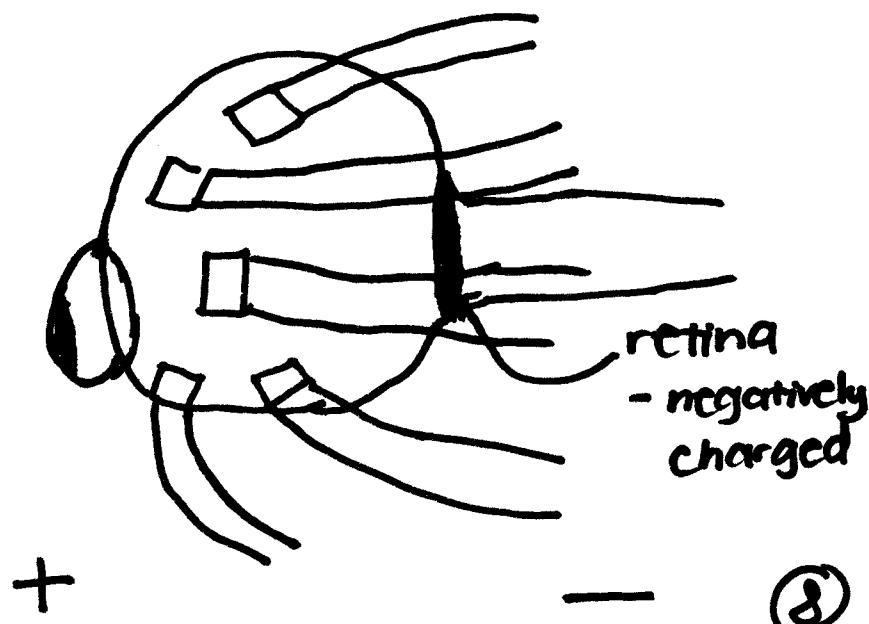
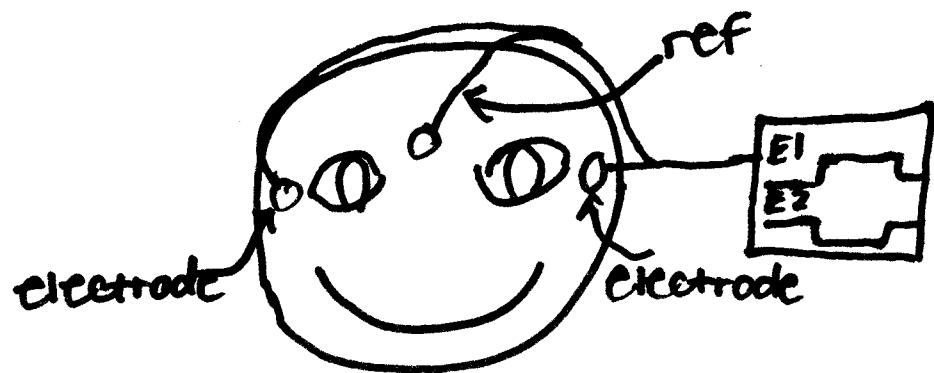


# The Neuron



# EOG

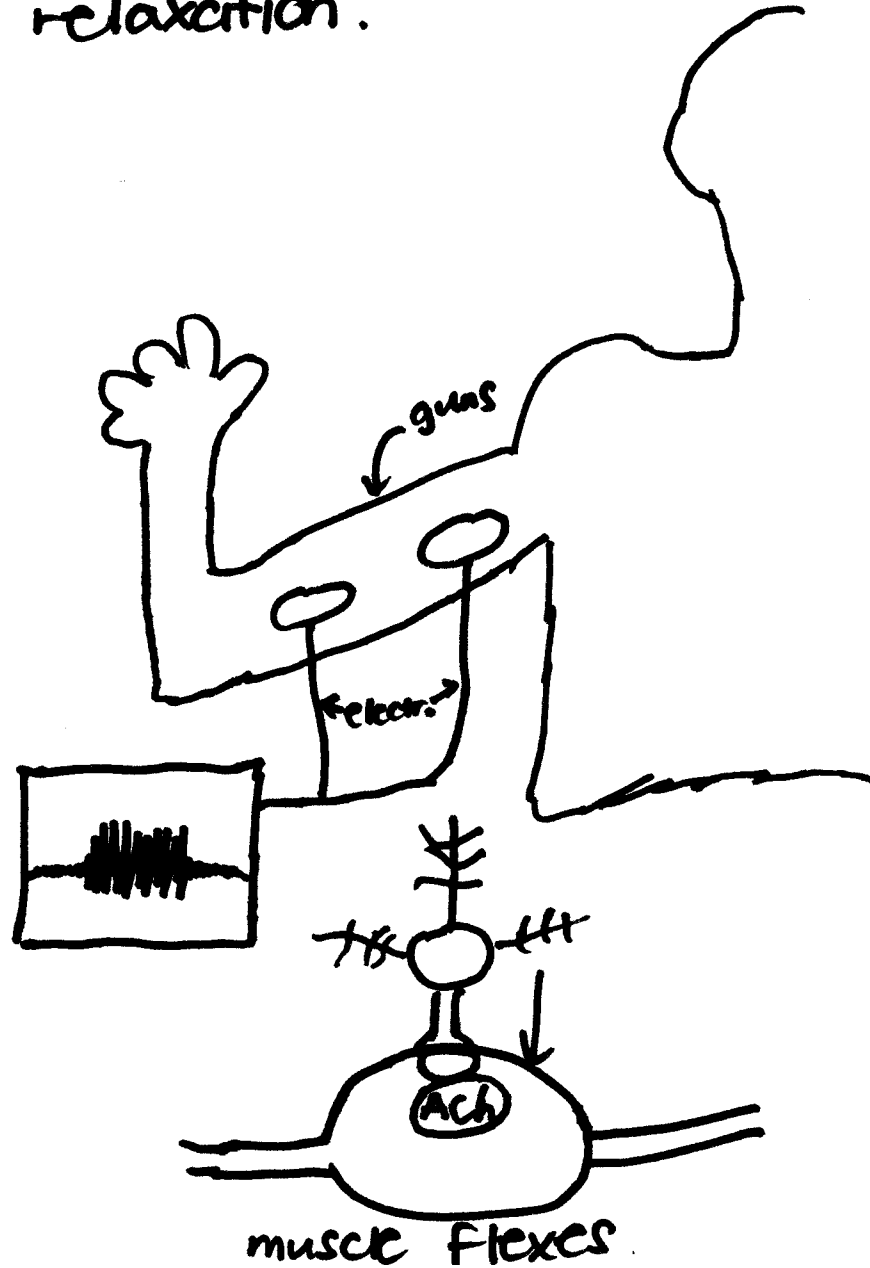
electro-oculography  
 - measures electrical activity involved in moving the eye.  
 There are six primary muscles involved in rotating the eyes.



# EMG

## electromyography

- measures electrical activity involved in muscle contraction and relaxation.



## Neuronal Cell Signaling

When a neuron is at rest, the resting potential is around  $-70\text{mV}$ . Dendrites, the branches on the neuron, pick up electrical messages from neighboring neurons. These messages can change the resting potential. If they accumulate and the potential to  $-50\text{mV}$ , an action potential occurs.

The axon is flooded with sodium ions. The sodium ions propagate down by letting in its friends to the axon. This happens at the nodes of Ranvier.

This leads to the release of neurotransmitters into the synapse.

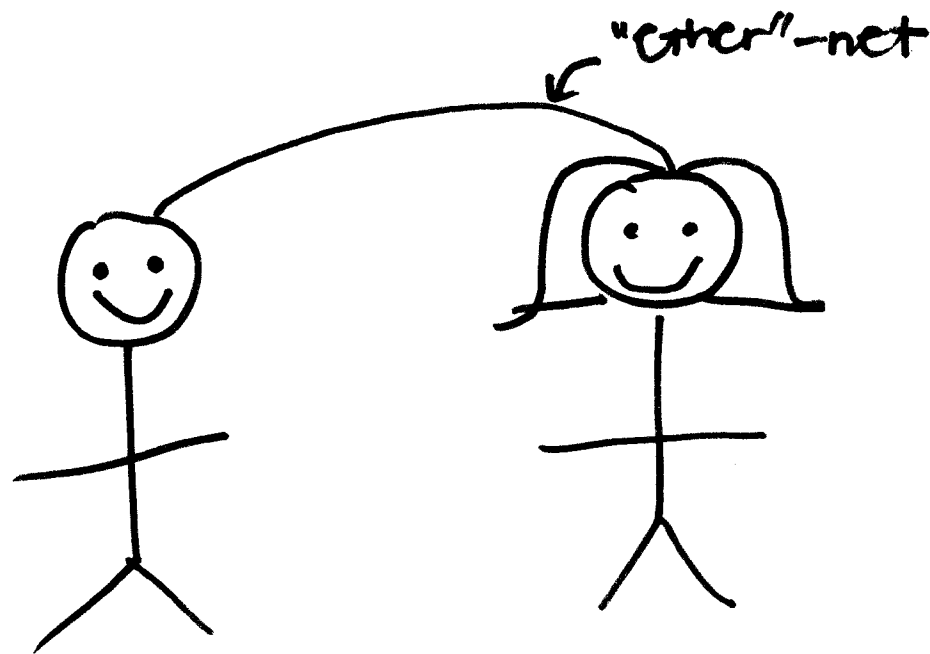
# EEG

## electroencephalography

- measures electrical activity related to brain processes.

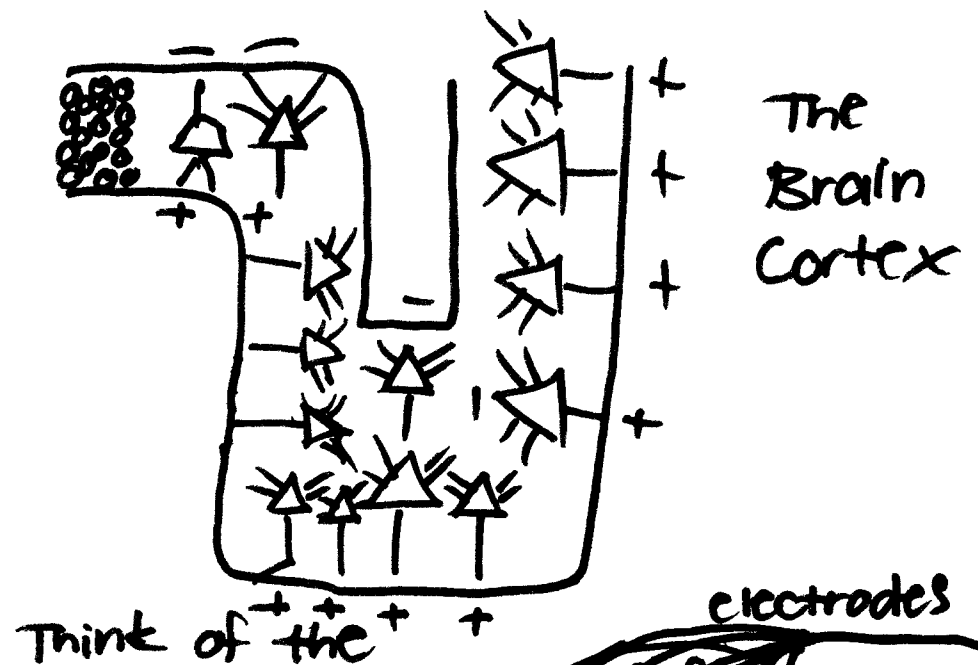
This technique was developed by Hans Berger.

But actually, EEG activity most closely reflect local field potentials from populations of neurons firing synchronously.

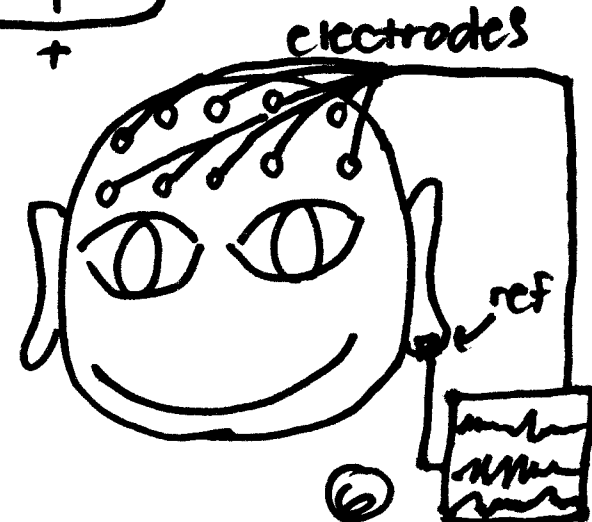
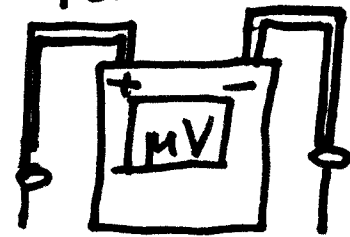


He thought that individuals were connected to each other by an invisible force (psychic energy).

(5)



Think of the EEG as a voltmeter for the brain.



(6)