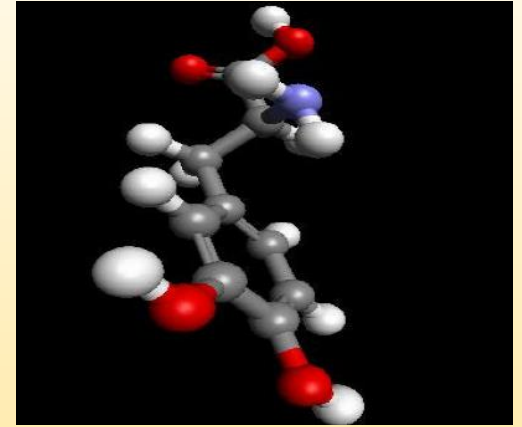
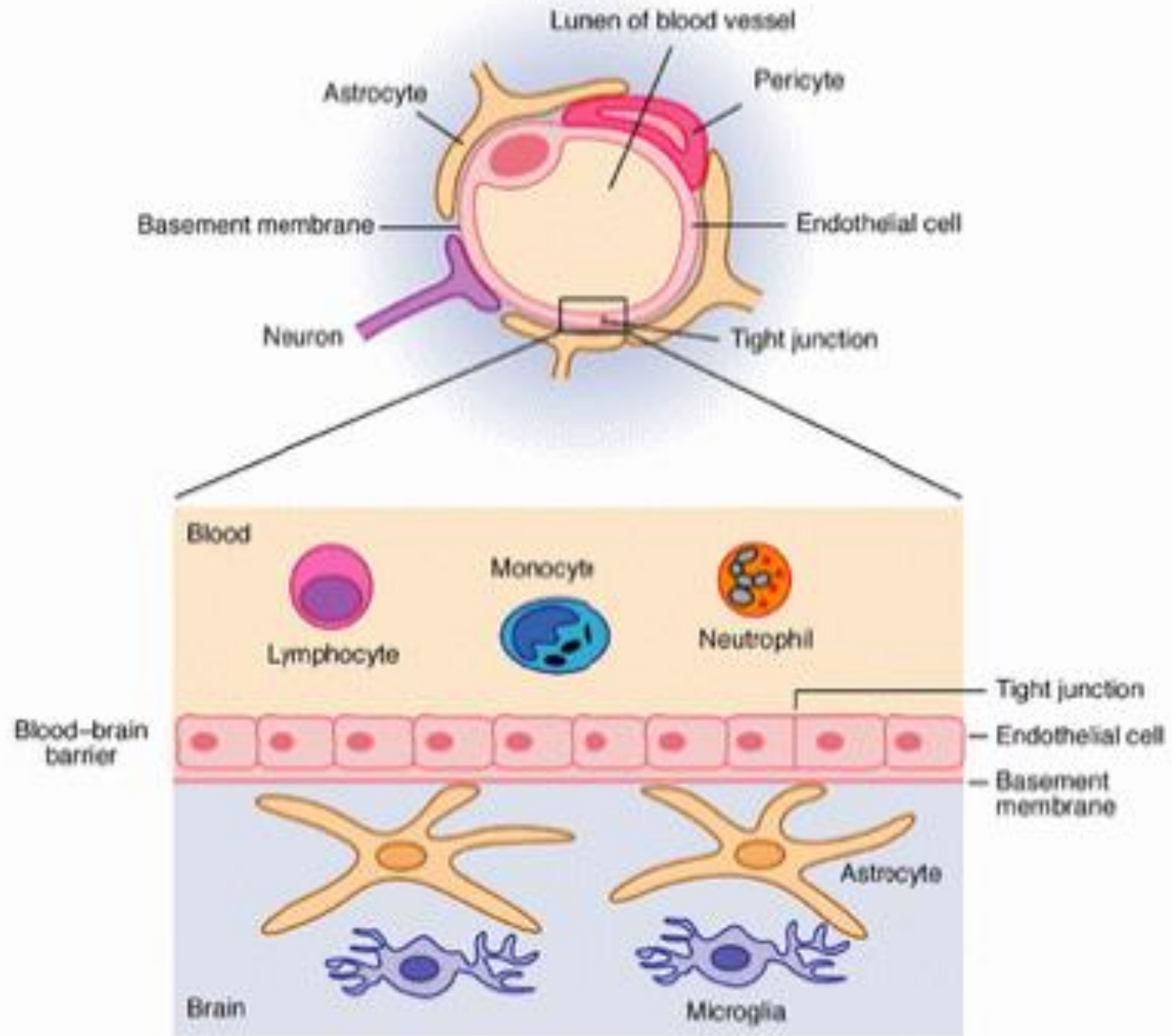


# L-Dopa

- Dr. Sacks treated his patients with the then-experimental drug, L-dopa
- L-Dopa is an *amino acid* and absorbed by the digestive system
- Pharmacologists found that L-dopa could cross the blood-brain barrier, whereas, *dopamine* treatments could not.



•The blood-brain barrier prevents many low-life forms, such as toxins, that make it into the blood stream from tainting the brain's pristine nerve cell habitat.





# L-Dopa and Dr. Sacks

- Since L-DOPA is able to cross the bloodbrain barrier, it can replace some of the deficit in dopamine seen in parkinsonism.

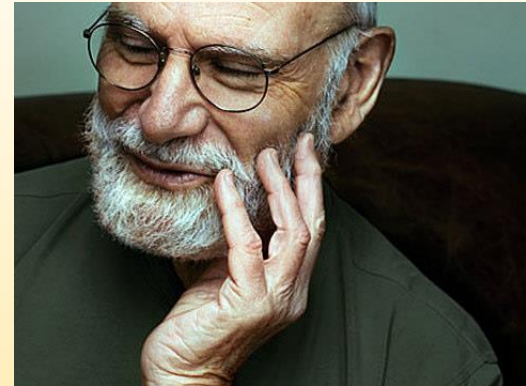






# Unpredictable side effects

- Dr. Sacks: “Yo-yo reactions began occurring in a majority of my patients; and along with these, there increasingly occurred an extreme and ever-increasing sensitivity to L-dopa...”
- Symptoms included nausea, anxiety, irritability, paranoia, hyperactivity, clumsiness, hallucinations, and uncontrollable movement
- Patients who had “awakened” in response to the drug, were taken off it, and returned to their original state.









ROBERT DENIRO ROBIN WILLIAMS

There is no such thing as a simple miracle.

# AWAKENINGS

Based on a true story



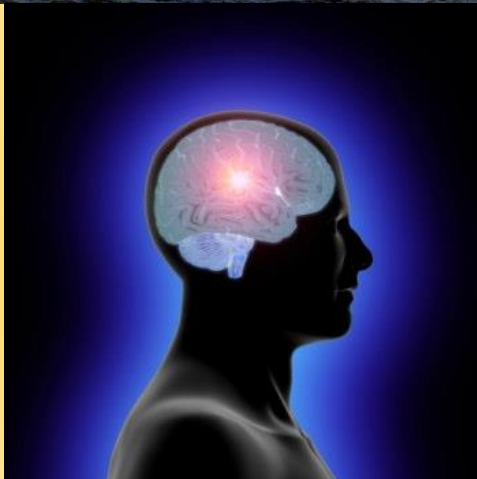
Currently, there is no cure for Parkinson's disease.

The goals of treatment are:

- 1) to minimize disability
- 2) reduce the possible side effects of drug therapy
- 3) help the patient maintain the highest possible quality of life.



*•Sacks' case study showed that it may be possible to correct a brain disorder by replenishing the supply of a missing neurotransmitter.*



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# Review: How Neurons

## Communicate

- Synaptic cleft/gap: space between neurons, discovered by Sir Charles Sherrington
  - Neurotransmitters:
    - Unlock channels at the receiving site allowing ions into the receiving neuron.
    - Excitatory role: positive ions allowed in causes firing
    - Inhibitory role: negative ions allowed in prevents firing
    - ACh (acetylcholine): excitor
    - GABA: inhibitor – keeps brain calmed down and not firing out of control
-

# Reuptake

Neurotransmitters in the synapse are reabsorbed into the sending neurons through the process of **reuptake**. This process applies the brakes on neurotransmitter action.

