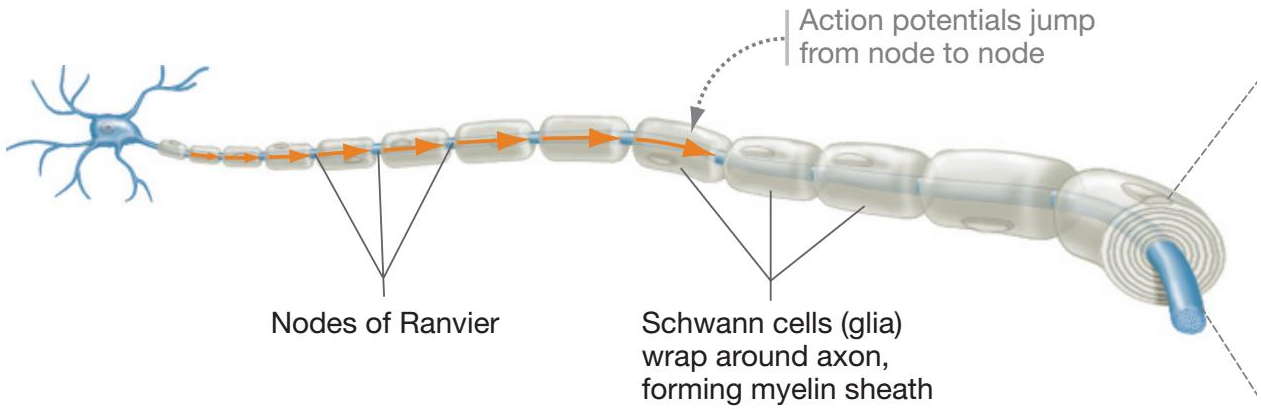
TBIOL 140: Nerves and the neuronal action potential

Homework
How does demyelination cause diseases like multiple sclerosis?

In today's lecture we talked about the importance of myelination. Now, consider what might happen when it is disrupted. One of the examples of destroying myelin in the CNS is the autoimmune disease multiple sclerosis (MS). Based on what you have learned about the transmission of nerve impulses please answer the following questions. You may use the textbook or any other resources.

1. Recall from today's lecture how the action potential propagates in the neuron (Fig. 43.8a from your textbook). How would you change this drawing to illustrate the disruption of the myelin sheath? (Hint: what do the orange arrows represent?)



2. If myelin damage increases, how will that affect:
(a) other neurons
(b) muscles
(c) speed of the nerve impulses

Please provide a 1-sentence answer for each.