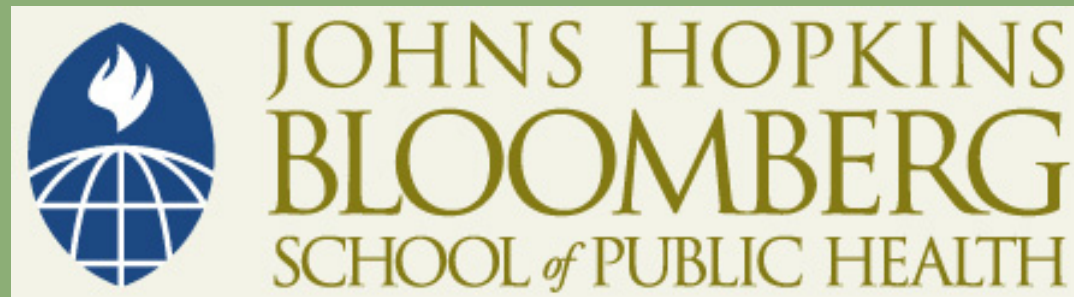


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JOHNS HOPKINS
BLOOMBERG
SCHOOL *of* PUBLIC HEALTH

Section B

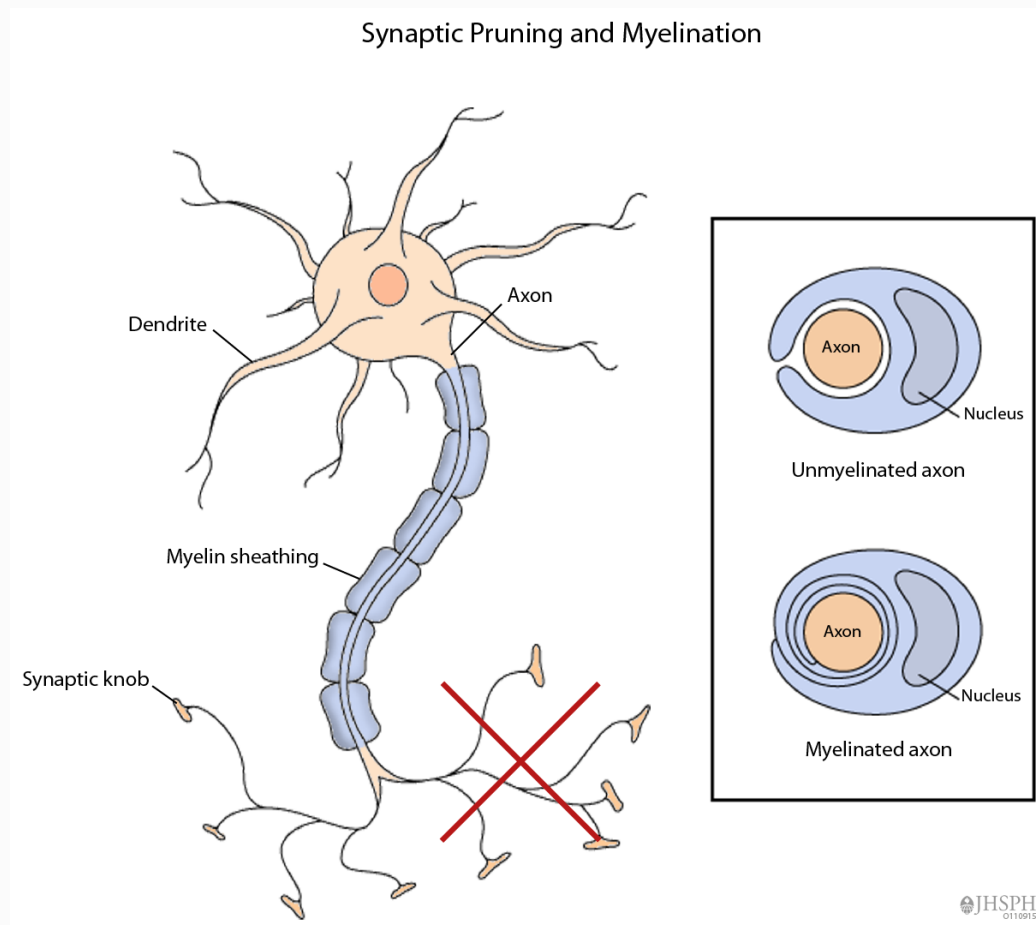
Features and Consequences of
Adolescent Brain Development

Features of Adolescent Brain Development

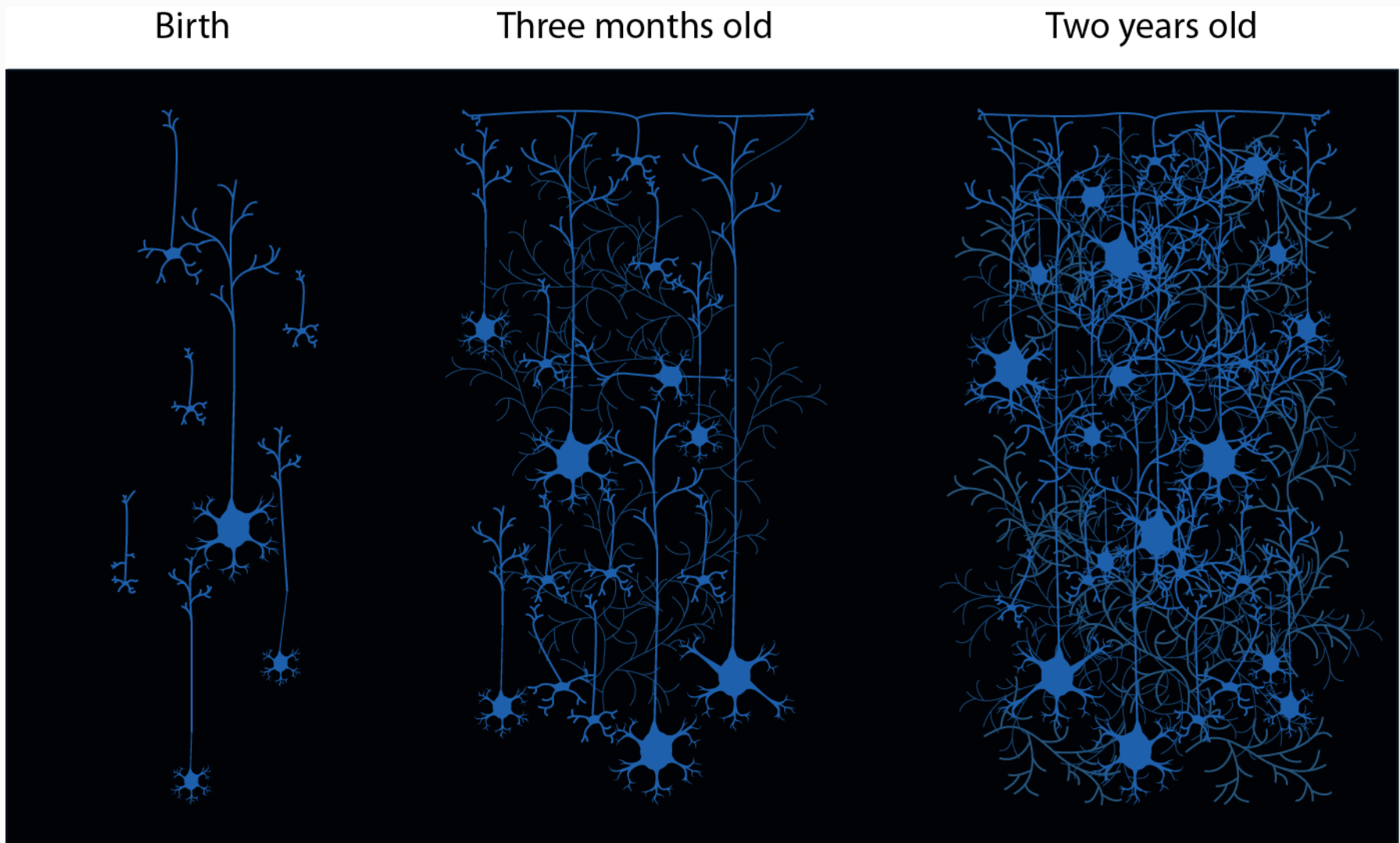
- Pruning and elimination of synapses (grey matter)
- Speed of information flow is increased by myelination (white matter)
- The relative proportion of white matter increases over grey
- Development occurs posterior to anterior
- Changes lead to a more streamlined and energy-efficient brain

Brain Maturation in Adolescence

- Improved brain function
 - Increased efficiency of local computations
 - Increased speed of neuronal transmission

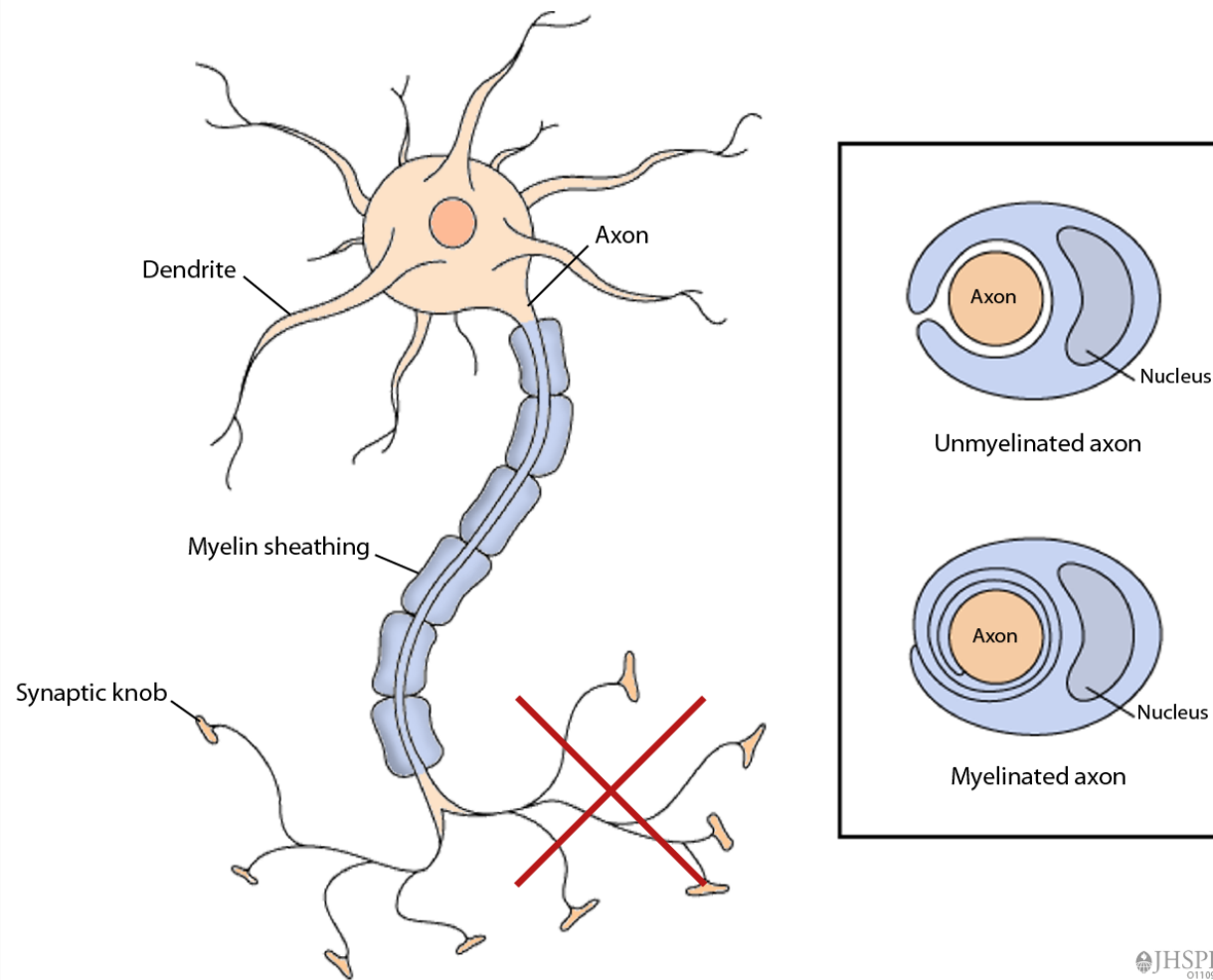


Neuronal Branching: Dendrites and Synapses



Pruning Process

Synaptic Pruning and Myelination



Cognitive Changes of Adolescence

- More a matter of degree than radical change
 - Formal operation
 - Processing speed and efficiency
 - Working memory

Executive Control

- Executive control develops:
 - Selective attention
 - Planning/decision making
 - Response inhibition
 - Response speed-accuracy adjustment

Cognitive Maturation of Adolescence

- The cognitive maturation of adolescence is less about developmentally delayed brain regions starting to function and more about the emergence of more functional networks (e.g., through pruning and myelination) supporting more efficient strategies for performing cognitive tasks (Spear, 2009)