Bad wrap: Myelin and myelin plasticity in health and disease.

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Public Summary:
Human central nervous system myelin development extends well into the fourth decade of life, and this protracted period underscores the potential for experience to modulate myelination. The concept of myelin plasticity implies adaptability in myelin structure and function in response to experiences during development and beyond. Mounting evidence supports this concept of neuronal activity-regulated changes in myelin-forming cells, including oligodendrocyte precursor cell proliferation, oligodendrogenesis and modulation of myelin microstructure. In healthy individuals, myelin plasticity in associative white matter structures of the brain is implicated in learning and motor function in both rodents and humans. Activity-dependent changes in myelin-forming cells may influence the function of neural networks that depend on the convergence of numerous neural signals on both a temporal and spatial scale. However, dysregulation of myelin plasticity can disadvantageously alter myelin microstructure and result in aberrant circuit function or contribute to pathological cell proliferation. Emerging roles for myelin plasticity in normal neurological function and in disease are discussed

Scientific Abstract:
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