Remyelination of demyelinated CNS axons is known to occur after neuronal injury. This process involves the regeneration of myelin sheaths around damaged axons, which is crucial for restoring normal conduction properties in the central nervous system. Meningeal cells, Schwann cells, and oligodendrocytes play essential roles in this process. Meningeal cells are a source of progenitor cells that differentiate into oligodendrocytes, which then remyelinate the axons. Schwann cells are involved in the remyelination process as well, but their role is more limited than that of oligodendrocytes. The process of remyelination is a complex and dynamic event that involves the coordination of various cellular and molecular events. This compendium contains chapters on the structure, function, and pathophysiology of axons in the peripheral and central nervous systems. Within the book, the editors have assembled a group of internationally acclaimed basic and clinical neuroscientists to provide an overview of the current understanding of axon function and pathophysiology, including chapters on the structure, function, and pathophysiology of axons in both peripheral and central nervous systems. The Axon: Structure, Function, and Pathophysiology provides a comprehensive and up-to-date compendium of current information about axonal histological structure, physiology, and function.