

# Myelin Sheath Encyclopedia Article

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# Myelin Sheath

The myelin sheath is a fatty white covering which is wrapped around nerve fibers (axons) throughout the body, brain, and spinal cord. This covering is composed of the membranes of one of two different types of specialized cells. In the central nervous system (the brain and spinal cord), the myelin sheath is composed of cells called oligodendrocytes. Throughout the rest of the body, Schwann cells create the myelin sheath. When oligodendrocytes or Schwann cells spiral around a nerve's axon, several layers of their membranes serve to insulate the axon. Because myelin has a white color, fibers which are myelinated are referred to as white matter. Unmyelinated fibers are referred to as gray matter. Small areas of interruption along the myelin sheath are called nodes of Ranvier. These nodes of Ranvier occur approximately every millimeter along the myelin sheath.

The function of this insulating layer of myelin around a nerve fiber is to increase the speed of a nerve impulse's conduction along the fiber. Without myelin, a nerve impulse travels at a rate of several meters per second along the nerve axon. Nerve impulses along a myelinated axon travel at approximately 100 meters per second.

Multiple sclerosis is a disease which results in the destruction of the myelin sheath. As the myelin sheath is stripped from axons, nerve impulses slow throughout the body, and movement becomes slow and difficult. Eventually, scar tissue may replace the myelin along various axons, resulting in further disability, and eventually in paralysis.