Neurorehabilitation is the medical discipline that seeks to restore functioning or facilitate compensatory or adaptive functioning for persons with disorders of the nervous system.

**Core content and knowledge base**

Residents in neurology should gain an understanding of how disorders of the nervous system affect a person's ability to function and how functional recovery occurs as a result of a dynamic interaction among regeneration, plasticity, learning and compensation. Residents will develop some of these concepts as they master the pathophysiology and natural history of various neurological disorders they encounter and study. Residents should also gain an understanding of specific aspects of neurorehabilitation including:

- functional assessment and outcome measures
- the availability and range of inpatient, outpatient acute and postacute rehabilitation services
- the functioning of an interdisciplinary rehabilitation team
- the use of orthotics, wheelchairs and other forms of adaptive equipment
- restorative neuropharmacology
- functional neuroimaging and recovery
- emerging and investigational restorative and rehabilitative technologies, such as partial body weight supported treadmill training, robotics and stem cell transplants.
- management of common problems in rehabilitation
  - spasticity
  - chronic pain
  - neurogenic bowel and bladder
  - cognitive and behavioral disorders
  - depression
  - eating and swallowing problems
  - sexual dysfunction
  - prevention of complications of persistent disability, *e.g.*, contractures, pressure ulcers, DVTs

Residents should develop particular familiarity with the role of rehabilitation for common debilitating neurological disorders such as:

- stroke
- traumatic brain injury
- multiple sclerosis
- spinal cord injury
- peripheral nerve and muscle disorders.

In addition, residents should develop an awareness of the role of rehabilitation in treating other neurological problems such as:
- chronic pain
- multiple systems disorders
- anoxic brain injury
- encephalitis
- neoplasms
- Parkinson’s disease and other movement disorders
- degenerative disorders and aging
- pediatric neurological disorders.

**Formal Training**
The experiences denoted above should be attained in rotations across all three years of the neurology residency. Principles of impairment, disability and handicap, effects of neurologic disorders on ADLs and everyday functioning, and effect of a patient's disabilities on family and social functioning should be considered in all rotations involving patients with chronic or disabling neurological disorders. However, residents should also take a minimum of one-month rotation in an inpatient and/or outpatient clinical rehabilitative service in which the bulk of experience is with patients with neurological causes for disability.

**Teaching resources**

- **References**
  - **Cerebrovascular disease**
  - **Chronic pain**
  - **Degenerative disorders and aging**
  - **Interdisciplinary management and social barriers**

**Neuromuscular disease**

**Orthotics**

**Outcomes measures**

**Pediatric neurorehabilitation**

**PT, OT, speech therapy**

**Regenerative, recovery, neural plasticity**
Rehabilitative orthopedics and neurosurgery
Salter RS. Textbook of Disorders and Injuries of the Musculoskeletal System: Disor-
ders and Injuries of the Musculoskeletal System: An Introduction to Orthopaedics, Fractures and Joint Injuries, Rheumatology, Metabolic Bone Disease and Rehabilitation. Baltimore: Williams & Wilkins, 1983.

Spinal cord injury

Traumatic brain injury

General

- Neurorehabilitation and Neural Repair (http://www.uphs.upenn.edu/nnr/)
- Web sites and links available through the SNRR (http://www.aan.com/) and the ASNR (http://www.asnr.com/)