

# OHSU Department of Orthopaedics and Rehabilitation

## Rotation Specific Goals & Objectives

### Rotation: Physical Medicine & Rehabilitation

### Resident year-in-training: PGY1

#### Attending Physicians:

1. **Hans Carlson, M.D.**

American Board of Physical Medicine and Rehabilitation  
Fellowship: Sports Medicine Rehabilitation

2. **Nels Carlson, M.D.**

American Board of Physical Medicine and Rehabilitation  
Fellowship: Neurophysiology/EMG

#### Primary Objective:

Develop a clinical expertise in the non-operative management of common musculoskeletal and neuromuscular conditions as well as fundamentals of amputee rehabilitation, prosthetic and orthotic prescription, and understanding of spinal cord injury rehabilitation. Residents will also be expected as part of a combination with the spine service to be able to diagnose and manage common cervical lumbar spine conditions regarding conservative management. A basic understanding of the electrophysiology behind the electrodiagnostic studies and interpreting these studies is also expected.

#### **Section I - Amputee management**

##### Upper extremity prosthetic

Objectives:

- Discuss prosthetic components and prescription options available for upper limb amputees both adult and pediatric.
- Be able to develop appropriate prosthetic's prescriptions for upper limb amputees; shoulder disarticulation, transhumeral amputation, transradial amputation, partial hand amputation.

##### Lower limb amputees

Objectives:

Discuss common etiology of lower limb amputee.

- Understand timeline of amputee rehabilitation from amputation to preprosthetic rehabilitation to prosthetic fitting to post-prosthetic rehabilitation.
- Understand prosthetic component options regarding both transtibial and transfemoral amputations.
- Prescribe an appropriate prosthetic prescription for lower limb amputee; hip disarticulation, transfemoral amputation, transtibial amputation, knee disarticulation, simes amputation, partial foot amputation.
- Understand troubleshooting with gait abnormalities with amputee.

## **Section II - Neuromuscular disease**

### **Motor neuron disease**

Objectives:

- Describe clinical features of adult motor neuron disease.
- Understand a typical clinical course presentation and functional deficit for adult motor neuron disease.
- Understand rehabilitation strategies for addressing deficits in motor neuron disease.

### **Myopathies**

Understand myopathy pathophysiology and differential diagnosis of weakness with or without sensory abnormalities.

Understand diagnostic options and clinical presentation regarding common myopathies.

### **Spinal cord injury**

Objectives:

- Be able to understand and use the ASIA spinal injury classification.
- Understand functional implications of different spinal cord injuries.
- Identify the major medical complications that accompany spinal cord injury.
- Identify the major causes of mortality following spinal cord injury.

### **Electrodiagnostic evaluations**

Objectives:

- Understand the physiology of normal nerve conduction.
- Be completely familiar with functional neuro-anatomy of the upper and lower extremities specifically muscle innervation: nerve roots, nerves, and muscle function as well as familiarization with cutaneous sensory nerve innervation patterns and dermatomes.
- Be familiar with the course of the brachial plexus as well as the lumbosacral plexus.
- Understand clinical patterns of presentation for common upper extremity entrapment neuropathies specifically ulnar neuropathy (distal and proximal), median neuropathies (distal and proximal), radial neuropathy, axillary neuropathy, suprascapular neuropathy, brachial plexopathy, cervical radiculopathy, myelopathy.
- Understand the clinical presentations of common lower extremity nerve injuries, specifically sciatic neuropathy, lumbosacral radiculopathy, peroneal neuropathy, tibial neuropathy, lumbosacral plexopathy, tarsal tunnel syndrome.
- Understand the difference between a nerve conduction study and electromyography.
- Understand the timeline of nerve injury with respect to time of ordering tests after suspected nerve injury.
- Understand the roles and limitations of electrodiagnostic studies in correlation to physical examination.
- Have a general understanding of issues involved with interpretation of electrodiagnostic studies specifically electromyography.
- Be able to interpret electrodiagnostic studies given wave form and EMG data and understand what constitutes a strong electrophysiologic evidence versus weak electrophysiologic evidence of pathophysiology.

### **Rehabilitation of Spinal Disorders**

Objectives:

- Understand the common etiologies of spinal conditions (specifically radiculopathy versus discogenic back pain versus muscular myofascial pain).
- Understand diagnostic options and indications for a specific test.
- Understand the common sources of back pain for different patients by age.
- Be able to describe appropriate management options and alternatives for patients.
- Discuss the difference between passive and active physical therapy.
- Have an understanding of the literature regarding conservative spine management treatment options and therapy approaches.
- Describe the difference between the rehabilitation of traumatic versus non-traumatic (overuse syndromes.)