

**FOOT AND ANKLE**  
**CORE CURRICULUM LEARNING OBJECTIVES**

**1. ANATOMY and BIOMECHANICS of the FOOT and ANKLE**

- Identify relevant anatomy of the foot and ankle, including:
  - Bones
  - Joints
  - Musculotendinous units
  - Ligaments
  - Nerves
  - Blood vessels
  - Fascia
- Describe the biomechanics of the foot during the gait cycle.
- Identify the main parameters used in performing a gait analysis.

**2. EVALUATION FOOT and ANKLE PROBLEMS**

Upon completion of this learning session, the resident will be able to:

- Outline appropriate history taking skills for patients with foot and ankle problems.
- Describe a complete physical examination of the foot and ankle, including:
  - Inspection
  - Palpation
  - Range of Motion, including:
    - Ankle dorsiflexion (knee straight)
    - Ankle dorsiflexion (knee bent)
    - Ankle plantar flexion
    - Hindfoot inversion and eversion
    - Medial column mobility
    - 1<sup>st</sup> MTP joint motion
    - Interphalangeal motion
  - Neurovascular assessment
  - Special Tests
- Identify the phases of gait and perform a functional gait analysis.
- Identify the indications for ordering and appropriately interpret the following imaging studies of the foot and ankle:
  - X-rays
    - Ankle series
    - Calcaneal series
    - Full weight bearing Foot series
    - Non weight bearing Foot series
  - CT Scan
  - MRI
  - Bone Scan
  - Ultrasound

- Identify common foot deformities, including:
  - Bunions
  - Pes planus
  - Pes cavus
  - Claw toes, Hammer toes, Mallet toes
  - Bunionette
- Describe the technical characteristics of a well-fitted shoe, including:
  - Uppers
  - Heel counter
  - Toe box
  - Sole
- Describe the characteristics of a comfort shoe.
- Describe the indications and the correct manner for prescribing orthotics.
- Outline safe and effective toenail care.

### **3. FOOT and ANKLE TRAUMA**

For the traumatic injuries listed below, the resident will be able to:

- Describe the typical mechanism of injury and physical examination findings.
- Identify and interpret appropriate imaging studies.
- Describe viable treatment options, including their risks and benefits.
- Outline the prognosis:
  - Ankle Sprains
  - Achilles Tendon Rupture
  - Ankle Fractures
  - Osteochondral lesion of the Talus
  - Pilon Fractures
  - Talus Fractures
  - Subtalar Dislocation
  - Calcaneal Fractures
  - Navicular Fractures
  - Midfoot Fractures
  - Lisfranc Fractures
  - Metatarsal Fractures
  - Phalangeal Fractures and toe dislocations
  - Open wounds and mangled foot
  - Compartment Syndrome of the Foot

### **4. DIABETIC FOOT**

Upon completion of this learning session, the resident will be able to:

- ❖ Describe the pathophysiology of diabetes.
- ❖ Outline the role of peripheral neuropathy in diabetic foot disease.
- ❖ Identify the risk factors for diabetic foot disease.
- ❖ Describe an appropriate physical examination of the foot for a diabetic patient, including sensory testing using Semmes-Weinstein filaments.

- ❖ Describe appropriate evaluation strategies for determining the extent of infection, including the role of:
  - Physical Examination
  - X-rays
  - MRI
  - Bone Scan
- ❖ Outline the principles of treating diabetic foot problems, including:
  - Callus formation
  - Plantar ulceration
  - Osteomyelitis
- ❖ Describe non-operative treatment strategies for patients with diabetic foot disease, including the indication for:
  - Plastizote inserts
  - Total contact casting
- ❖ Describe the indications, and surgical technique of the following procedures:
  - Ulcer debridement
  - Tendoachilles lengthening/gastrocnemius recession
  - Exostectomy
  - Toe amputation
  - Partial ray amputation
  - Transmetatarsal amputation
  - Chopart, Symes, and below-knee amputation
- ❖ Demonstrate an understanding of Charcot arthropathy in terms of:
  - Diagnosis
  - Classification
  - Staging
  - Treatment Principles
- ❖ Outline appropriate patient education strategies which include emphasis on:
  - Appropriate footwear
  - Daily foot checks
  - Paring of Callosities

## **5. FOOT and ANKLE ARTHRITIS**

Upon completion of this learning session, the resident will be able to:

- Outline the pathophysiology of degenerative and post-traumatic osteoarthritis. For arthritis involving the joints listed below:
  - ◆ Ankle
  - ◆ Subtalar
  - ◆ Talonavicular
  - ◆ Midfoot
  - ◆ First Metatarsalphalangeal (Hallus Rigidus)
- Identify the typical clinical presentation and physical examination findings.
- Identify and interpret appropriate imaging studies.
- Describe non-operative treatment options.

- Describe operative options, including indications, surgical goals, and prognosis.
- For arthrodeses of the joints listed above, describe the surgical technique including the optimal position.
- Outline the pathophysiology of the inflammatory arthritides (ex. Rheumatoid arthritis).
- Describe the clinical presentation and treatment options for rheumatoid hindfoot disease.
- Describe the clinical presentation and treatment options for rheumatoid forefoot disease.

## **6. CHRONIC SOFT-TISSUE FOOT and ANKLE PROBLEMS**

- For the clinical problems listed below:
  - Achilles Tendonitis
  - Retrocalcaneal bursitis
  - Haglund's deformity
  - Peroneal tendonitis
  - Peroneal tendon subluxation
  - Posterior tibial tendonitis
  - Plantar Fasciitis and heel pain syndrome
  - Lateral ankle instability
  - Subtalar instability
- Describe the characteristic history.
- Outline an appropriate physical examination and identify classic findings.
- Identify the indications (if any) for the following investigations:
  - Full Weight-bearing X-rays
  - Stress X-rays
  - CT scan
  - MRI
  - Bone Scan
- Outline non-operative treatment options, including:
  - Steroid injections
  - Splinting
  - Orthotics
  - Physical Therapy
- Describe operative options, including their indications, prognosis, and potential complications.

## **7. PES PLANUS and PES CAVUS**

- For the conditions listed below, the resident will be able to:
  - Acquired adult flatfoot deformity (posterior tibial tendon dysfunction)
  - Congenital pes planus
  - Cavovarus foot
- Identify the typical clinical presentation
- Outline the theories of etiology
- Describe non-operative treatment options
- Describe operative treatment options, including indication, technique and prognosis

## **8. HALLUS VALGUS**

- Upon completion of this learning session, the resident will be able to:
  - Outline the basic theories on the etiology of hallux valgus
  - Describe the characteristic physical and radiographic findings associated with hallux valgus
  - Outline appropriate non-operative management of hallux valgus
  - Describe appropriate surgical options for hallux valgus (juvenile and adult)
  - Outline the potential complications of the surgical treatment of hallux valgus
  - Identify and describe salvage procedures for failed hallux valgus surgery

## **9. LESSER TOES' PROBLEMS**

- For the lesser toe deformities listed below, the resident will be able to:
  - ❖ Hammer toes
  - ❖ Claw toes
  - ❖ Mallet toes
  - ❖ Soft corns
  - ❖ Paronychia
  - ❖ MTP subluxation/dislocation
  - ❖ Bunionette
  - ❖ Metatarsalgia
- Identify the typical clinical presentation
- Outline the theories of their etiology
- Describe non-operative treatment options
- Describe operative treatment options, including indication, technique and prognosis

## **10. NEUROLOGICAL CONDITIONS**

- For the clinical problems listed below:
  - ❖ Superficial peroneal nerve injury
  - ❖ Tarsal Tunnel Syndrome
  - ❖ Morton's neuroma
  - ❖ Sural neuritis
  - ❖ Peripheral Neuropathy
  - ❖ Post-operative neuroma
  - ❖ Reflex Sympathetic Dystrophy/Complex Regional Pain Syndrome (CRPS)
  - ❖ Charcot-Marie-Tooth Disease
  - ❖ Polio
- Describe a typical history
- Identify typical physical examination findings
- Demonstrate an understanding of an appropriate neurologic examination
- Identify appropriate further investigation where indicated

- Outline non-operative options, including their indications, prognosis, and potential complications

**FOOT and ANKLE CORE CURRICULUM: TEACHING SESSIONS**

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|---------------|--|--------------------|
| 1.            | ANATOMY and BIOMECHANICS of the FOOT and ANKLE<br>Lecture 1: <u>Mike A.</u>  | (1 lecture)        |
| 2.            | EVALUATING FOOT and ANKLE PROBLEMS<br>Lecture 1: <u>Steve P. (if anyone else can - let me know)</u><br>Lecture 2: <u>Steve P. (if anyone else can - let me know)</u> | (2 lectures)       |
| 3.            | FOOT and ANKLE TRAUMA<br>Lecture 1: _____<br>Lecture 2: _____<br>Lecture 3: _____  | (3 lectures)       |
| 4.            | DIABETIC FOOT<br>Lecture 1 <u>Mickey P.</u><br>Lecture 2 <u>Mickey P.</u>  | (2 lectures)       |
| 5.            | FOOT and ANKLE ARTHRITIS<br>Lecture 1 <u>Mike A.</u><br>Lecture 2 <u>Mike A.</u>   | (2 lectures)       |
| 6.            | CHRONIC SOFT TISSUE FOOT and ANKLE PROBLEMS<br>Lecture 1 _____<br>Lecture 2 _____<br>Lecture 3 _____   | (3 lectures)       |
| 7.            | PES PLANUS and PES CAVUS<br>Lecture 1 _____  | (1 lecture)        |
| 8.            | HALLUX VALGUS<br>Lecture 1 <u>Mike A.</u>  | (1 lecture)        |
| 9.            | LESSER TOES' PROBLEMS<br>Lecture 1 _____   | (1 lecture)        |
| 10.           | NEUROLOGICAL CONDITIONS<br>Lecture 1 _____<br>Lecture 2 _____  | (2 lectures)       |
| <b>TOTAL:</b> |  | <b>18 Lectures</b> |