American College of Foot and Ankle Surgeons®

ACFAS BASIC LEARNING PATHWAY:
Biologics, Cartilage Repair and Healing Factors in Surgery

Learning Objectives of this Pathway:

- Understand optimization for healing in patients prior to surgery
- Recognize and understand the different options for bone grafting
- Understand the Biology, Injury and Treatment options for Cartilage of the foot and ankle

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Days 1-2:

Clinical Sessions:

- Bone Metabolism: What do I need to look for?
- Osteobiologics: Where is the Science

Podcasts:

Nutritional Optimization for the Surgical Patient

E-Book Chapters:

Orthobiologics For Foot and Ankle

- Chapter 1: Introduction
- Chapter 9: Recombinant Gene Therapy
- Chapter 12-1: Effects of Mechanical Environments on Bone Healing: Section I. Distraction Osteogenesis
- Chapter 12-2: Effects of Mechanical Environments on Bone Healing: Section II. Biologic Effects of Fixation

Journal Articles:

- Comparison and Use of Allograft Bone Morphogenetic Protein Versus Other Materials in Ankle and Hindfoot Fusions
- Assessment of Multipotent Mesenchymal Stromal Cells in Bone Marrow Aspirate From Human Calcaneus
- Ankle Arthrodesis Fusion Rates for Mesenchymal Stem Cell Bone Allograft Versus Proximal Tibia Autograft
- Is It Worth Discriminating Against Patients Who Smoke? A Systematic Literature Review on the Effects of Tobacco Use in Foot and Ankle Surgery

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The ACFAS learning pathways are a tool to be used by residency directors, fellowship directors and school faculty to aid with didactic learning during the COVID-19 crisis. They are not intended to replace a curriculum, but to supplement student and resident education during this time of need.

The learning pathways are divided into basic, intermediate, and advanced categories.

Pathways have been organized into specific topics that have a variety of educational materials from the ACFAS On Demand course content. They also include journal articles with links primarily from the Journal of Foot and Ankle Surgery (JFAS).

Days 3-4:

Clinical Sessions:

- The Basics: Biology, Collagen, Injury, Healing
- Biologic and Synthetic Scaffolds: Navigating Indications and Outcomes
- Autologous Chondrocyte Implantation: Where are We with Cost and Outcomes?

Podcasts:
New Research Joint Preservation/Cartilage Restoration

E-Book Chapters:
Orthobiologics for Foot and Ankle

- Chapter 2: Autogenous Bone Grafting
- Chapter 3: Bone Marrow Aspirate
- Chapter 10: Mesenchymal Stem Cell Grafts
- Chapter 11: Treatment of Osteochondral Defects of the Talus with Cartilage Grafts

Journal Articles:

- Autologous Chondrocyte Implantation for Talar Osteochondral Lesions: Comparison Between 5-Year Follow-Up Magnetic Resonance Imaging Findings and 7-Year Follow-Up Clinical Results
- Treatment of a Focal Articular Cartilage Defect of the Talus with Polymer-Based Autologous Chondrocyte Implantation: A 12-Year Follow-Up Period
- Functional Medium-Term Results After Autologous Matrix-Induced Chondrogenesis for Osteochondral Lesions of the Talus: A 5-Year Prospective Cohort Study

Days 5-6:

Clinical Sessions:
PRP, Stem Cells, Hyaluronic Acid-The Quick Facts and Fiction

Podcasts:
Effect of Early Rehabilitation and Weight Bearing on Tendon and Bone Healing

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E-Book Chapters:

Orthobiologics For Foot and Ankle

- Chapter 4: Allograft Options
- Chapter 5: Xenograft
- Chapter 6: Demineralized Bone Matrix
- Chapter 7-1: Synthetic Graft Extenders: Section I. Nonstructural Calcium Grafts and Bioactive Glass
- Chapter 7-2: Synthetic Graft Extenders: Section II. Structural Cements and Ceramic Grafts

Journal Articles:

- Allografts versus Equine Xenografts in Calcaneal Fracture Repair
- A Comparative Study of Incorporation Rates between Non-xenograft and Bovine-based Structural Bone Graft in Foot and Ankle Surgery
- Incorporation of Bovine-based Structural Bone Grafts Used in Reconstructive Foot Surgery
- Biological principles of bone graft healing