



**American
College of
Foot and Ankle
Surgeons®**

ACFAS INTERMEDIATE LEARNING PATHWAY: What's Up with the Second Ray? Etiology and Various Treatment Options of the Second Met

Learning Objectives of this Pathway:

- Understand the anatomy and etiology of 2nd ray pathology
- Understand the workup and imaging of 2nd ray pathology
- Recognize and understand the different options for repair of plantar plate tears and other MTP joint pathology

Day 1:

JFAS Journal Articles:

- [Metatarsophalangeal Joint Instability of the Lesser Toes](#)
- [A Systematic Review of Plantar Plate Repair in the Management of Lesser Metatarsophalangeal Joint Instability](#)

Clinical Sessions (full course):

[The 2nd Ray: Knowns and Unknowns](#)

Day 2:

JFAS Journal Articles:

[Combined Plantar Plate and Hammertoe Repair with Flexor Digitorum Longus Tendon Transfer for Chronic, Severe Sagittal Plane Instability of the Lesser Metatarsophalangeal Joints: Preliminary Observations](#)

Clinical Sessions (full course):

[The Obstinate 2nd MTPJ](#)

Day 3:

JFAS Journal Articles:

- [Anatomic Reconstruction Versus Traditional Rebalancing in Lesser Metatarsophalangeal Joint Reconstruction](#)
- [Technique Using Interference Fixation Repair for Plantar Plate Ligament Disruption of Lesser Metatarsophalangeal Joints](#)

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).

Podcasts:

[Freiberg's Infracrion and Second MTP Arthritis - Salvage or Fuse](#)

Clinical Sessions (individual):

- [Sub 2nd MPJ Instability: Plantar Plate Repair vs. FDL Transfer - 2nd MPJ Instability - Flexor Plate Repair vs. Flexor Tendon X-fer](#)
- [Sub 2nd MPJ Instability: Plantar Plate Repair vs. FDL Transfer - Flexor Tendon Transfer vs Plantar Plate Repair](#)

Additional Outside Journal References:

Lesser Metatarsophalangeal Joint Instability: Advancements in Plantar Plate Reconstruction.
[Foot Ankle Clin.](#) 2018 Mar;23(1):127-143. doi: 10.1016/j.fcl.2017.09.009. Epub 2017 Nov 16.

Plantar Plate Repair for Lesser Metatarsophalangeal Joint Instability.
[Foot Ankle Int.](#) 2017 Mar;38(3):234-242. doi: 10.1177/1071100716679110. Epub 2016 Nov 16.

Metatarsophalangeal joint stability: a systematic review on the plantar plate of the lesser toes.
[J Foot Ankle Res.](#) 2016 Aug 19;9:32. doi: 10.1186/s13047-016-0165-2. eCollection 2016.

Prospective evaluation of protocol for surgical treatment of lesser MTP joint plantar plate tears.
[Foot Ankle Int.](#) 2014 Sep;35(9):876-85. doi: 10.1177/1071100714539659. Epub 2014 Jun 23.

[The Role of First Ray Insufficiency in the Development of Metatarsalgia.](#)

[Foot Ankle Clin.](#) 2019 Dec;24(4):641-648. doi: 10.1016/j.fcl.2019.07.001. Epub 2019 Sep 5. Review.

[Magnetic resonance imaging versus musculoskeletal ultrasound for identification and localization of plantar plate tears.](#)

[Foot Ankle Spec.](#) 2012 Dec;5(6):359-65. doi: 10.1177/1938640012463061. Epub 2012 Oct 16.

[Lesser Metatarsophalangeal Joint Instability: Treatment with Tendon Transfers.](#)

[Foot Ankle Clin.](#) 2018 Mar;23(1):103-126. doi: 10.1016/j.fcl.2017.09.008. Review.

[Role of plantar plate and surgical reconstruction techniques on static stability of lesser metatarsophalangeal joints: a biomechanical study.](#)

[Foot Ankle Int.](#) 2013 Oct;34(10):1436-42. doi: 10.1177/1071100713491728. Epub 2013 Jun 17.

[Plantar plate tears: a review of the modified flexor tendon transfer repair for stabilization.](#)

[Clin Podiatr Med Surg.](#) 2011 Jan;28(1):57-68. doi: 10.1016/j.cpm.2010.11.002. Review.

[Second metatarsophalangeal joint pathology and freiberg disease.](#)

[Clin Podiatr Med Surg.](#) 2013 Jul;30(3):313-25. doi: 10.1016/j.cpm.2013.04.009. Review.

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[One-Year Outcome Study of Anatomic Reconstruction of Lesser Metatarsophalangeal Joints.](#)

Foot Ankle Spec. 2019 Jun 11:1938640019846974. doi: 10.1177/1938640019846974. [Epub ahead of print]

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