



**Todd A. Irwin, MD**

## Bio

- Dr. Irwin returned to Charlotte in 2017 after spending the previous seven years as an Assistant Professor at the University of Michigan Department of Orthopaedic Surgery, where he served as the Assistant Program Director for Skills.
- Dr. Irwin is actively involved in teaching Orthopaedic Surgery residents and fellows and has lectured nationally on numerous topics pertaining to Foot and Ankle Orthopaedic Surgery.
- Dr. Irwin's research has been published in leading international Orthopaedic Surgery journals including Journal of Bone and Joint Surgery, Journal of the American Academy of Orthopaedic Surgeons, and Foot and Ankle International.
- Reviewer for Foot and Ankle International
- Research Advisory Committee member – OrthoCarolina Research Institute (OCRI)
- Quality Improvement Committee member - OrthoCarolina
- Board Certified - American Board of Orthopaedic Surgery

**P: 704.323.3668**

### Patient Rating:

4.7 out of 5 Stars

## LOCATIONS

- Foot & Ankle Institute
- Pineville

## CLINICAL SPECIALTIES

- Foot & Ankle

## Education

- **University of Michigan** - *Bachelor of Science, Cellular and Molecular Biology Graduated with High Distinction*
- **Wayne State University School of Medicine** - *Doctor of Medicine*
- **William Beaumont Hospital** - *Orthopedic Residency*
- **OrthoCarolina Foot and Ankle Institute** - *Fellowship, Orthopaedic Foot and Ankle Surgery*

## Practice

### Clinical Interests:

- Arthritis management of the foot and ankle
  - Ankle replacement

- Ankle fusion
- Midfoot/Hindfoot fusions
- Trauma
  - Post-traumatic foot/ankle reconstruction
  - Trauma and acute fracture care of foot/ankle
  - Avascular necrosis (AVN)
  - Post-traumatic foot/ankle arthritis treatment
  - Stress fracture foot/ankle treatment
- Sports
  - Foot/ankle sports medicine/arthroscopy
  - Athletic injuries to foot/ankle
  - Cartilage preservation
  - OCD treatment
  - Ligament repair
  - Achilles tendonitis and injury
  - Ankle instability
- Arch conditions
  - Flatfoot correction
  - High-arched feet (cavovarus) correction
- Foot/ankle and lower extremity (tibia) deformity correction
  - Limb Salvage
  - Limb Lengthening
  - Spatial Frame (Ilizarov)
- Neuromuscular conditions
  - Charcot-Marie-Tooth
  - Foot Drop
  - Stroke-related Foot and Ankle Disorders
  - Spastic Disorders
  - Tendon Transfers
- Paralytic conditions/drop foot/deformity
  - Tendon transfers
  - Reconstruction
- Forefoot reconstruction
  - Hallux rigidus
  - Bunion correction, including minimally invasive techniques (MIS)
  - Hammertoe correction
  - Rheumatoid forefoot correction
- Congenital foot/ankle correction
- Charcot foot/ankle treatment

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#### **Memberships in Professional Societies:**

- Member, Limb Lengthening and Reconstruction Society
- Fellow, American Academy of Orthopaedic Surgeons
- Member, American Orthopaedic Foot and Ankle Society

#### Journal Reviewer:

- 2012-2017 Techniques in Foot and Ankle Surgery (Ad Hoc)
- 2014-present Foot and Ankle International (Ad Hoc)

## Awards

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- **Named a 2023 Top Doctor by Charlotte Magazine**
  - **2022 [North Carolina's Top Doctors](#)**, Charlotte Region, SouthPark Magazine
  - Named a 2021 Top Doctor by Charlotte Magazine
  - 2016 - University of Michigan Department of Orthopaedic Surgery  
Waldemar M. Roeser Golden Scalpel Award
  - 2015 - Semifinalist, 2015 AOFAS Roger A. Mann award, for "A Novel Algorithm for Isolated Weber B Ankle Fractures: A Retrospective Review of 51 Nonoperatively Treated Patients"
  - 2014 - First Place Award Recipient, "Gait and Balance in Total Ankle Arthroplasty versus Ankle Arthrodesis at 12 to 36 months after surgery," Michigan Orthopaedic Society (MOS) Annual Scientific Meeting, Mackinac Island, MI
  - 2013 - Current Trends in Prophylactic Antibiotic Use Following Elective Outpatient Foot and Ankle Surgery, Foot and Ankle Guided Poster Tour Selection, AAOS Annual Meeting, Chicago, IL
  - 2007 - Edward D. Henderson, M.D. Physician in Training Award, "Cellular Mechanisms of Staple Epiphysiodesis and Recovery", Mid-America Orthopaedic Association 25th Annual Meeting
  - 2007 - Third Place Award Recipient, "Cellular Mechanisms of Staple Epiphysiodesis and Recovery," William Beaumont Hospital 37th Annual Residents' and Fellows' Research Forum
  - 2007 - First Place Basic Science Award Recipient, "Cellular Mechanisms of Staple Epiphysiodesis and Recovery", OREF Midwest Orthopaedic Resident Research Symposium
  - 2007 - Second Place Award Recipient, "Cellular Mechanisms of Staple Epiphysiodesis and Recovery," Detroit Academy of Orthopaedic Surgeons
  - 2001 - Alpha Omega Alpha, Wayne State University School of Medicine
  - 1998 - The Cleveland Clinic Foundation Award, "Bcl-2 and N-Myc co-operate to enhance the transformed phenotype of neuroblastoma cells", Midwest Society for Pediatric Research
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- 1997 - James B. Angell Scholar, University of Michigan

## Research

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### Peer-Reviewed Journals and Publications

1. Jasty R, Lu J, Irwin T, Suchard S, Clarke MF, Castle VP: Role of p53 in the regulation of irradiation-induced apoptosis in neuroblastoma cells. *Molecular genetics and metabolism* 65(2): 155-64, 1998. PMID:9787107
2. Nuthakki S, Fessell D, Lal N, Shirkhoda A, Irwin T, Irwin R: Epithelioid hemangioendothelioma mimicking a nerve sheath tumor clinically and on MR imaging *Skeletal Radiol.* 36(SUPPL. 1): 58-62, 2007. PMID:17077984
3. Irwin TA: Current concepts review: insertional achilles tendinopathy. *Foot Ankle Int* 31(10): 933-939, 2010. PMID:20964977
4. Irwin TA, Anderson RB, Davis WH, Cohen BE: Effect of ankle arthritis on clinical outcome of lateral ankle ligament reconstruction in cavovarus feet. *Foot Ankle Int* 31(11): 941-948, 2010. PMID:21189185
5. Murphy JM, Kadakia AR, Irwin TA: Variability in radiographic medial clear space measurement of the normal weight-bearing ankle. *Foot Ankle Int* 33(11): 956-963, 2012. PMID:23131441
6. Irwin TA, Lien J, Kadakia AR: Posterior malleolus fracture. *J Am Acad Orthop Surg* 21(1): 32-40, 2013. PMID:23281469
7. Chang JB, Kung TA, Levi B, Irwin T, Kadakia A, Cederna PS: Surgical management of burn flexion and extension contractures of the toes *J Burn Care Res* 35(1): 93-101, 2014. PMID:24390110
8. Lovisetti G, Irwin TA: Posterior malleolus fracture. *J Am Acad Orthop Surg* 22(2): 67-, 2014. PMID:24486752
9. Murphy JM, Kadakia AR, Schilling PL, Irwin TA: Relationship among radiographic ankle medial clear space, sex, and height *Orthopedics* 37(5): e449-e454, 2014. PMID:24810821
10. Oak NR, Sabb BJ, Kadakia AR, Irwin TA: Isolated adult Tillaux fracture: a report of two cases. *The Journal of foot and ankle surgery: official publication of the American College of Foot and Ankle Surgeons* 53(4):489-92, 2014. PMID:24795204

11. Ruta DJ, Kadakia AR, Irwin TA: What are the patterns of prophylactic postoperative oral antibiotic use after foot and ankle surgery? *Clinical orthopedics and related research* 472(10):3204-13, 2014. PMID:24942966
12. Palmisano AC, Tai BL, Belmont B, Irwin TA, Shih A, Holmes JR: Comparison of Cortical Bone Drilling Induced Heat Production Among Common Drilling Tools. *Journal of orthopedic trauma* 29(5): 188-93, 2015. PMID:25233167
13. Tai BL, Palmisano AC, Belmont B, Irwin TA, Holmes J, Shih AJ: Numerical evaluation of sequential bone drilling strategies based on thermal damage. *Med Eng Phys* 37(9): 855-61, 2015. PMID:26163230
14. Palmisano AC, Tai BL, Belmont B, Irwin TA, Shih A, Holmes JR: Heat accumulation during sequential cortical bone drilling. *J Orthop Res*: 2015. PMID:26334198
15. Acker WB 2nd, Tai BL, Belmont B, Shih AJ, Irwin TA, Holmes JR: Two-Finger Tightness: What Is It? Measuring torque and reproducibility in a simulated model. *J Orthop Trauma*: 2015. PMID:26655518
16. Seeley MA, Kazarian E, King B, Biermann JS, Carpenter JE, Caird MS, Irwin TA: Core Concepts: Orthopedic Intern Curriculum Boot Camp. *Orthopedics* 39(1): e62-7, 2016. PMID:26730688
17. Cowan JB, Seeley MA, Irwin TA, Caird MS: Computer-Simulated Arthroscopic Knee Surgery: Effects of Distraction on Resident Performance. *Orthopedics* 39(2): e240-5, 2016. PMID:26811955
18. Holmes JR, Acker WB, Murphy JM, McKinney A, Kadakia AR, Irwin TA: A Novel Algorithm for Isolated Weber B Ankle Fractures: A Retrospective Review of 51 Nonsurgically Treated Patients. *J Am Acad Orthop Surg* 24(9):645-52, 2016. PMID:27509039
19. Burns GT, King BW, Holmes JR, Irwin TA: Evaluating Internal Fixation Skills Using Surgical Stimulation. *J Bone Joint Surg Am* 99(5):e21, 2017. PMID:28244920
20. Weisman MHS, Holmes JR, Irwin TA, Talusan PG: Venous Thromboembolic Prophylaxis in Foot and Ankle Surgery: A Review of Current Literature and Practice. *Foot Ankle Spec* 10(4):343-51, 2017. PMID:28719780

## Non-Peer-Reviewed Journals and Publications

1. Irwin TA, Kou JX, Fortin PT: Classification and treatment of severe ankle articular segment deficits: osteochondral allograft reconstruction. *Foot Ankle Clin* 12(1): 41-55, 2007. PMID:17350510
2. Irwin TA: Posterior malleolus fracture: the author replies. *J Am Acad Orthop Surg* 22(2): 67-, 2014. PMID:24555221
3. King BW, Ruta DJ, Irwin TA: Spastic foot and ankle deformities: Evaluation and treatment *Foot Ankle Clin* 19(1): 97-111, 2014. PMID:24548513

## Book Chapters

1. Irwin TA, Kadakia AR: Bunions/Bunionettes. *Presentation Imaging and Treatment of Common Musculoskeletal Conditions: MRI-Arthroscopy Correlation*, Miller MD, Sanders TG Elsevier Publications, Philadelphia, PA, 2012.
2. Kadakia AR, Irwin TA: Disorders of the Foot and Ankle. *Review of Orthopedics 6th Edition*, Miller MD, Thompson SR, Hart JA Elsevier Publications, Philadelphia, PA, 2012.
3. Irwin TA, Kadakia AR: Ankle Fractures. *Presentation Imaging and Treatment of Common Musculoskeletal Conditions: MRI-ARthroscopy Correlation*, Miller MD, Sanders TG Elsevier Publications, 2012.
4. Irwin TA: Tendon Injuries of the Foot and Ankle. *DeLee & Drez's Orthopaedic Sports Medicine: Principles and Practice*, 4th Ed., Miller MD, Thompson SR Elsevier Publications, Philadelphia, PA, 2014.
5. Todd A. Irwin, Robert B. Anderson, W. Hodges Davis: Principles of the Physical Examination of the Foot and Ankle. *Mann's Surgery of the Foot and Ankle*, Michael J. Coughlin, Charles L. Saltzman, Robert B. Anderson Elsevier, 2014. 9th, 2, 37-60

## Abstracts

1. Jasty R, Lu J, Irwin T, Castle VP: Bcl-2 and N-Myc co-operate to enhance the transformed phenotype of neuroblastoma cells, *Blood* 1997, 90, Suppl. 1, 3595 (193b), 1997.

2. Irwin TA, Anderson RB, Davis WH, Cohen BE.: Effect of Ankle Arthritis on Clinical Outcome of Lateral Ankle Ligament Reconstruction in Cavovarus Feet., American Orthopaedic Foot and Ankle Society Annual Meeting, Denver, CO, 2008.
3. Irwin TA: "Comparison of Diagnostic accuracy and MRI utilization by general practitioners and foot and ankle orthopedists", Michigan Orthopaedic Society, Mackinac Island, MI, 2011.
4. Irwin, TA: "Isolated tibiotalar arthrodesis utilizing single anterior plate technique", Michigan Orthopaedic Society, Mackinac Island, MI, 2011.
5. Irwin TA: Early Reconstruction of Foot Drop with Peroneal Nerve Exploration, Michigan Orthopaedic Society, Mackinac Island, MI, 2011.
6. Murphy JM, Kadakia AR, Irwin TA: "Variability in Radiographic Medial Clear Space Measurement of the Normal Weightbearing Ankle", American Orthopaedic Foot & Ankle Society Annual Meeting, San Diego, CA, 2012.
7. Ruta D, Irwin TA: "Current Trends Among AOFAS Members in the use of Prophylactic Antibiotics Following Elective Outpatient Foot & Ankle Surgery", Michigan Orthopaedic Society Annual Meeting, Mackinac Island, MI, 2012.
8. Murphy JM, Kadakia AR, Irwin TA: Variability in Radiographic Medial Clear Space Measurement of the normal Weightbearing Ankle, Michigan Orthopaedic Society Annual Meeting, Mackinac Island, MI, 2012.
9. Caird MS, Cowan JB, Seeley MA, Irwin TA: "Computer-Simulated Arthroscopic Knee Surgery: Effects of Distraction", 52nd Carl E. Badgley Day Lectureship University of Michigan Orthopaedic Alumni Society, Ann Arbor, MI, 2013.
10. Ruda D, Irwin TA, Kadakia AR: "Current Trends in Prophylactic Antibiotic Use Following Elective Outpatient Foot & Ankle Surgery", AAOS Annual Meeting, Chicago, IL, 2013.
11. Walsh M, Irwin TA, Seeley M, Kadakia AR: "Ankle Arthrodesis Using A Single Locking Plate Through an Anterior Approach: A Retrospective Study", American Orthopaedic Foot & Ankle Society Summer Meeting, Hollywood, FL, 2013.

12. Cowan JB, Seeley MA, Irwin TA, Rooney D, Caird MS: "Computer-Simulated Arthroscopic Knee Surgery: Effects Of Distraction, Annual Meeting of the Pediatric Orthopaedic Society of North America (POSNA), Hollywood, CA, 2013.
13. King BW, Irwin TA, Wrobel J: "Comparing Gait, Balance and Daily Activity in Total Ankle Arthroplasty Versus Ankle Arthrodesis", Michigan Orthopaedic Society Annual Meeting, Mackinac Island, MI, 2013.
14. Cowan JB, Seeley MA, Irwin TA, Caird MS: "Computer-Simulated Arthroscopic Knee Surgery: Effects of Distraction", Michigan Orthopaedic Society Annual Meeting, Mackinac Island, MI, 2013. Palmisano AC, Tai BL, Belmont B, Irwin TA, Holmes JR: Bone Drilling Induced Heat Production
15. Palmisano AC, Tai BL, Belmont B, Irwin TA, Shih, A, Holmes JR: Bone Drilling Induced Heat Production, American Society of Mechanical Engineers and International Manufacturing
16. Cowan JB, Seeley MA, Irwin TA, Rooney D, Caird MS: "Computer-Simulated Arthroscopic Knee Surgery: Effects of Distraction", American Academy of Orthopaedic Surgeons (AAOS) Annual Meeting, New Orleans, LA, 2014.
17. Beaman DN, Fortin PT, Kurdziel M, Baker E, Irwin TA, Baker K: "Characterization of Subtalar Joint Motion with Taylor Spatial Frame-based Deformity Correction", Limb Lengthening and Reconstruction Society 24th Annual Scientific Meeting, Montreal, CA, 2014.
18. Irwin TA, Fortin PT, Beaman DN: "Internal Fixation Following Thin-Wire External Fixation Removal or Modification for Foot and Ankle Pathology", Limb Lengthening and Reconstruction Society 24th Annual Scientific Meeting, Montreal, CA, 2014.
19. Irwin TA, Fortin PT, Beaman DN: "Internal Fixation Following Thin-Wire External Fixation Removal or Modification for Foot and Ankle Pathology", Michigan Orthopaedic Society (MOS) Annual Meeting, Mackinac Island, MI, 2014.
20. Beaman DN, Fortin PT, Kurdziel M, Baker E, Irwin TA, Baker K: "Characterization of Subtalar Joint Motion with Taylor Spatial Frame-based Deformity Correction", Michigan Orthopaedic Society (MOS)



Annual Scientific Meeting, Mackinac Island, MI, 2014.

21. King BW, Irwin TA, Wrobel JS, Byron M, Holmes J: "Gait and Balance in Total Ankle Arthroplasty versus Ankle Arthrodesis at 12 to 36 months after surgery", Michigan Orthopaedic Society (MOS) Annual Scientific Meeting, Mackinac Island, MI, 2014.
22. Palmisano AC, Tai BL, Belmont B, Irwin TA, Shih A, Holmes Jr: Comparison of Cortical Bone Drilling Induced Heat Production Among Common Drilling Tools, Michigan Orthopaedic Society Annual Meeting, Mackinac Island, MI, 2014.
23. Palmisano AC, Tai BL, Belmont B, Irwin TA, Shih A, Holmes Jr: Comparison of Cortical Bone Drilling Induced Heat Production Among Common Drilling Tools, Orthopaedic Trauma Association Annual Meeting, Tampa, FL, 2014.
24. Acker WB, Irwin TA, McKinney A, Murphy JM, Kadakia AR, Holmes JR: A Novel Algorithm for Isolated Weber B Ankle Fractures: A Retrospective Review of 51 Nonoperatively Treated Patients, AAOS Annual Meeting, Las Vegas, NV, 2015.
25. King BW, Wrobel JS, Holmes JR, Irwin, TA: Gait and Balance in Total Ankle Arthroplasty versus Ankle Arthrodesis at 12 to 36 months after surgery, AAOS Annual Meeting, Las Vegas, NV, 2015.
26. Acker WB, Irwin TA, McKinney A, Murphy JM, Kadakia AR, Holmes JR: A Novel Algorithm for Isolated Weber B Ankle Fractures: A Retrospective Review of 51 Nonoperatively Treated Patients, AOFAS Annual Meeting, Long Beach, CA, 2015.
27. Irwin TA, Fortin PT, Beaman DN: Internal Fixation Following Thin-Wire External Fixation Removal or Modification for Foot and Ankle Pathology, AOFAS Annual Meeting, Long Beach, CA, 2015.
28. Williams BR, Fortin PT, Holmes JR, Irwin TA: Radiographic Assessment of Lower Extremity Alignment in Ankle Arthritis Using Preoperative Long-Leg Alignment Views, AOFAS Annual Meeting, Long Beach, CA, 2015.
29. Palmisano AC, Tai BL, Belmont B, Irwin TA, Shih A, Holmes Jr: Comparison of Cortical Bone Drilling Induced Heat Production Among Common Drilling Tools, AOFAS Specialty Day, Las Vegas, NV, 2015.

30. Acker WB, Irwin TA, McKinney A, Murphy JM, Kadakia AR, Holmes JR: A Novel Algorithm for Isolated Weber B Ankle Fractures: A Retrospective Review of 51 Nonoperatively Treated Patients, AOFAS Specialty Day, Las Vegas, NV, 2015.
31. Beaman DN, Irwin TA, Baker EA, Etscheidt J, Saad MA, Baker KC, Fortin PT.: Analysis of Tibial Osteotomy for Conditions of the Foot and Ankle, International Limb Lengthening and Reconstruction Society Annual Meeting, Miami, FL, 2015.
32. Williams BR, Fortin PT, Holmes JR, Irwin TA: Radiographic Assessment of Lower Extremity Alignment in Ankle Arthritis Using Preoperative Long-Leg Alignment Views, Michigan Orthopaedic Society Annual Meeting, Mackinac Island, MI, 2015.
33. King BW, Wrobel JS, Holmes JR, Irwin, TA: "Gait and Balance in Total Ankle Arthroplasty versus Ankle Arthrodesis at 12 to 36 months after surgery", Mid-America Orthopaedic Association 33rd Annual Meeting, Hilton Head, SC, 2015.
34. Williams BR, Fortin PT, Gagnier J, Holmes JR, Irwin TA: Radiographic Assessment of Lower Extremity Alignment in Ankle Arthritis Using Preoperative Long-Leg Alignment Views, AAOS Annual Meeting, American Orthopaedic Foot and Ankle Society Specialty Day, Orlando, FL, 2016.
35. Burns GT, King BW, Holmes JR, Irwin TA: Evaluating Internal Fixation Skills Using Surgical Simulation, AOA Council of Orthopaedic Residency Directors, Seattle, WA, 2016.
36. Burns GT, King BW, Holmes JR, Irwin TA: Evaluating Internal Fixation Skills Using Surgical Simulation, Mid-America Orthopaedic Association Annual Meeting, Bonita Springs, FL, 2016.
37. Williams BR, Fortin PT, Gagnier J, Holmes JR, Irwin TA: Radiographic Assessment of Lower Extremity Alignment in Ankle Arthritis Using Preoperative Long-Leg Alignment Views, Mid-America Orthopaedic Association Annual Meeting, Bonita Springs, FL, 2016.
38. Finney F, Scott J, Khoury B, Kozloff K, Irwin TA, Holmes JR, Talusan PG: Angiology of the Plantar Plate: A Novel Technique for Imaging of the Plantar Plate Microvasculature, AOFAS Annual Meeting, Seattle, WA,

2017.