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Here we are again!

Minimally Invasive Cheilectomy

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Chairman Coriel Orthopaedic Group

NHS
Doncaster and Bassetlaw Teaching Hospitals
NHS Foundation Trust

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My journey

- Initially quite negative!
- Evidence growing

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Barriers

- Starting again, getting over the learning curve!
- If its no better than open?
- Fear
- Wounds heal from side to side!
- Is correction maintained long term?
- Cost!
- Takes longer?

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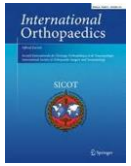
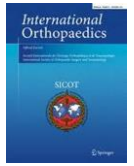
Evidence

- Maffuli et al 2011. Effectiveness and safety of MIS. A systematic review
- Data lacking, not possible to determine clear recommendations, although preliminary results encouraging



- Trnka et al 2013. Critical review of the evidence
- Majority level IV, one II and there III. Hi volume centers “bias?”
- Comparable with open surgery , good correction, possible malalignment



- Curran et al 2015. Case controlled study of MIS Vs Open surgery
- Results of MIS excellent, but “learning curve”. Higher risk of screw removal

- Lee et al 2017. Comparing percutaneous chevron/akin open with scarf/akin. Both groups comparable outcomes. Less pain with MICA

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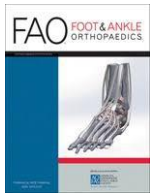
Evidence

Frigg et al 2018. MIS Vs open surgery: A multi center trial
Similar outcomes with higher screw removal risk in MIS 34%, Call to switch Is premature.



Young et al 2017. MIS for young female patients with mild to mod deformity.
Similar clinical outcomes to distal chevron met osteotomy

Holme et al 2020. Third generation MICA for Hallux Valgus
Safe and effective approach. Further research needed to determine long term outcomes

Neufield et al 2021 Outcomes and surgical strategies of MICA procedures
94 patients (11.2 months), Safe and reproducible, associated with rapid improvement in pain scores, early W/B, significant correction, high satisfaction, low complications and learning curve not as steep as reported.

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Technique

- Preparation
- Prep to the high calf
- Don’t use tourniquet
- Drape to high calf
- Draw the metatarsal and phalanx onto the skin

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What's new “META”

- Through and through “unstable” osteotomy
- No lateral release before osteotomy
- Rotation of met head
- Always do Akin

Fourth-Generation Minimally Invasive Hallux Valgus Surgery With Metaphyseal Extra-Articular Transverse and Akin Osteotomy (META): 12 Month Clinical and Radiologic Results

Thomas L. Lewis, MBChB, BSc, MRCS, MFSTEd1 , Benjamin Lau, BSc, MRCS1 , Yousif Alkhalfan, MBBCh, BAO, MRCS2, Samuel Trowbridge, MBBS, MRCS1, David Gordon, MBChB, MRCS, MD, FRCS(Tr & Orth)3, Joel Vernois, MD4, Peter Lam, MBBS, FRACS5 , and Robbie Ray, MBChB, ChM(T&O), FRCSed(Tr & Orth), FEBOT

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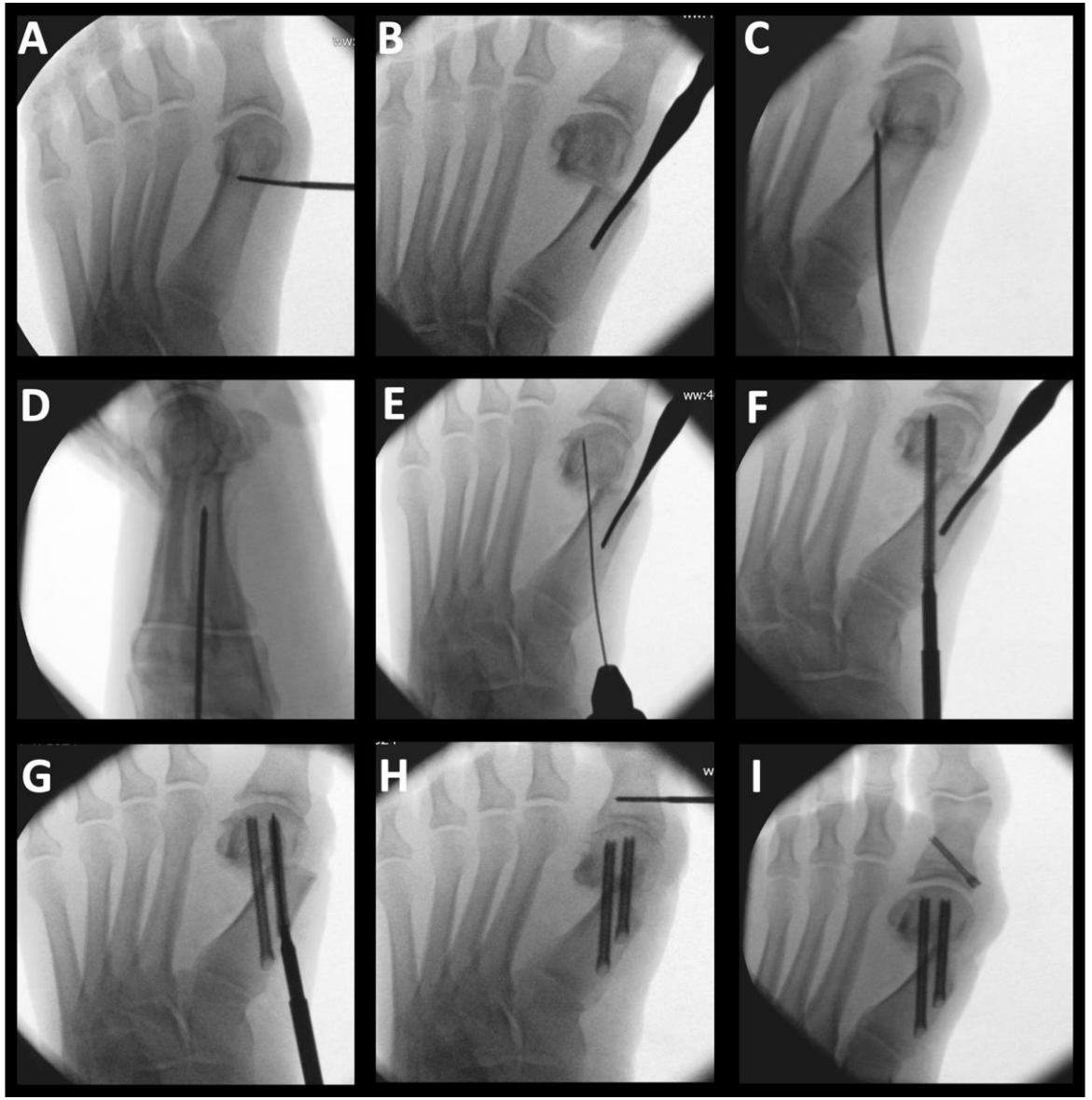

Fourth-Generation Minimally Invasive Hallux Valgus Surgery With Metaphyseal Extra-Articular Transverse and Akin Osteotomy (META): 12 Month Clinical and Radiologic Results

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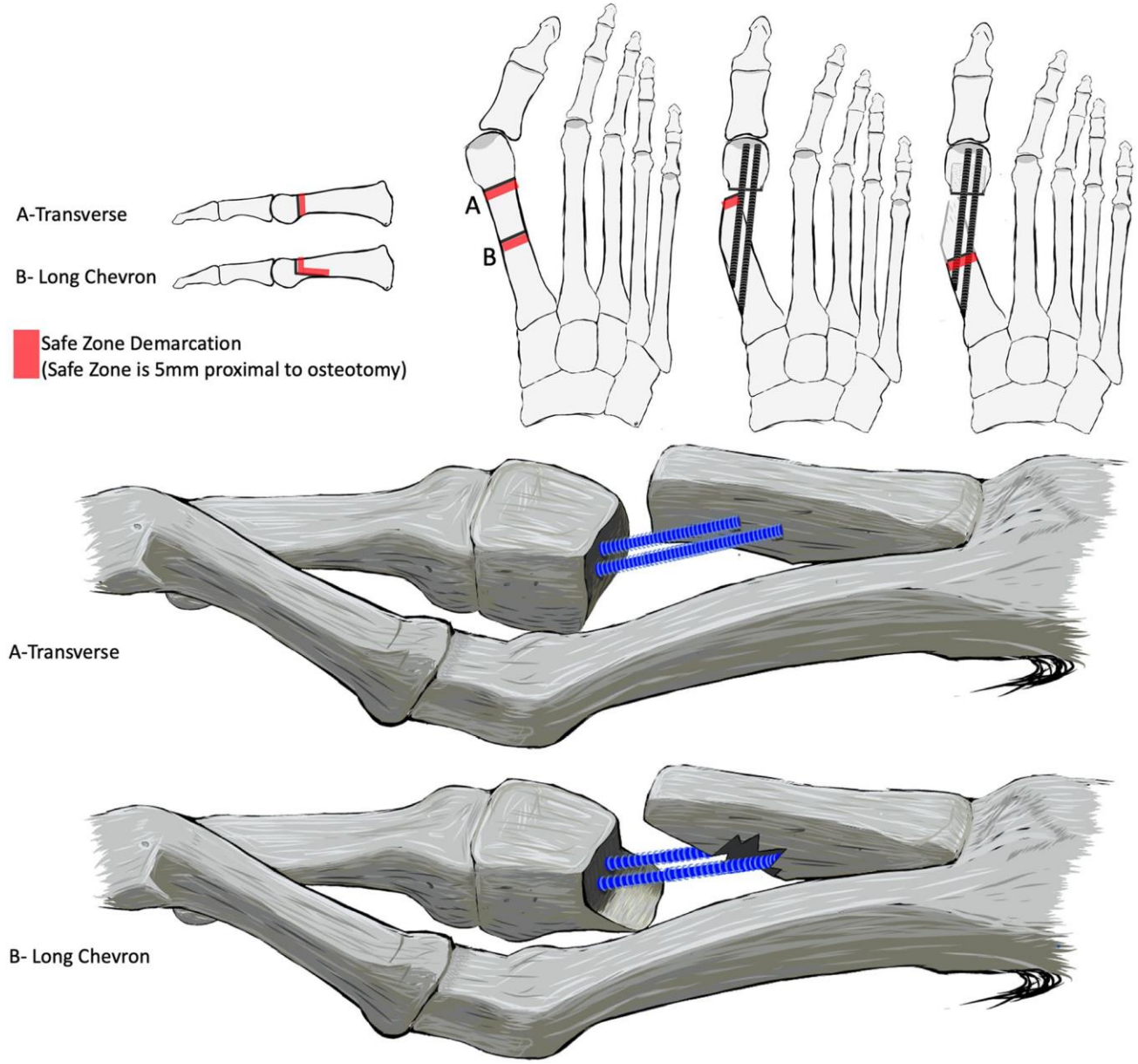

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Stryker

Novastep

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Audit

- 24 patients
- 19 HAV alone
- 5 with adjunct procedures
- 15 patients with 6 month follow up

- PSQ range- 100 highest / 69 lowest
- Lowest score- due to poor post op pain control/ pain when standing log periods - states its better
- Average pat sat 86 (meets our bench mark 2011)
- Patients with no DATA set <6 months stated in notes they are well with no significant complications
- 1 patient (failed data completion) stated they were delighted-no pain

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Complications

- 5 patients had 1 screw removed
- 4- 1st met 1-akin
- 1 patient had a dorsal bone prominence-filed down (now fine)
- 1 suspected DVT negative






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Comparison of MIS and Open osteotomy

Scott Hendrick Surgical Trainee
MPodS Submission HMP2021

Objectives

- Measure Pre-operative and Post-operative weight bearing DP Xrays measuring IMA and HVA with a comprehensive statistical analysis to investigate significant outcomes provide comparison between MICA and Scarf-Akin Osteotomies.
- Inter-rater reliability testing between three specialists in podiatric surgery to enhance the rigour of results.
- Investigate pre-operative and post-operative MOXFQ scores via PASCOM-10 to compare the differences between MICA and Scarf-Akin patient outcomes across 3 domains; pain, walking/standing, and social interaction.
- Investigate PSQ10 data sets via PASCOM-10 and compare the differences of patient outcomes and experiences between MICA and Scarf-Akin Osteotomies

Inclusion criteria

Adults aged ≥18years, hallux valgus deformity, had surgery performed by the lead consultant and had a full set of pre-operative and post-operative weight bearing x-rays.

exclusion criteria

- Revision surgery
- patients that underwent additional procedures to the first ray such as hallux IPJ
- surgery on patients <18 years
- No post-operative or non weightbearing x-rays.
- No patients where excluded due to medical health conditions to make the study more applicable to the general population, patient demographics and characteristics and additional procedures are highlighted in table 2 & 3 appendix 1.

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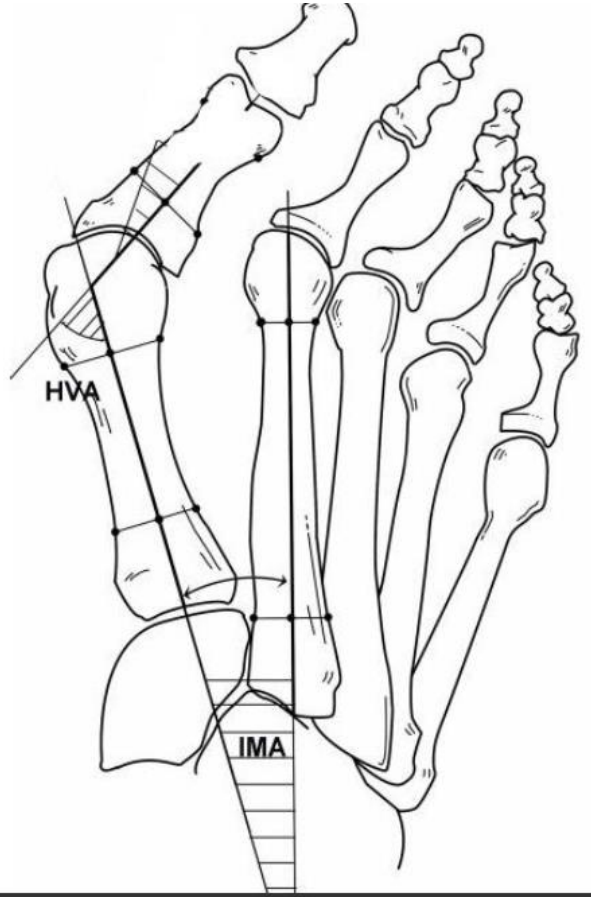

Characteristic(s)	MICA	Scarf-Akin
Gender	Male =5 Female =50 1:10 m/f=ratio	Male = 45 Female =199 1:4 M/F Ratio
Age range (years)	18 – 72 Average age 45	18 – 80 Average age 45
Foot	Left =25 Right =30	Left=112 Right=132
Additional procedures	2nd PIPJ fusion with smart toe or k-wire (7) 2nd or more PIPJ Fusion (11) 2/3, neuroma excision (1) 3/4 neuroma excision (2) 5th metatarsal scarf osteotomy (3) MIS lesser metatarsal osteotomy (8) 2/3 MCJ Fusion (1)	2nd PIPJ fusion with smart toe or k-wire (36) 2nd PIPJ Fusion and plantar plate repair (4) 2nd or more PIPJ fusion with smart toe or k-wire (6) 2/3, neuroma excision (3) 3/4 neuroma excision (4) 2/3 weil osteotomy (2) 2,3,4 weil osteotomy (5) RA nodule excision (2) ganglion excision (2) 2nd plantar bursa excision (1) 5th met scarf (5) 2nd cartiva and PIPJ Fusion (1) 2nd MCJ Fusion with graft (2) 5th Scarf and lipoma excision (1) 2/3 MCJ Fusion (2) Closing base wedge osteotomy of proximal phalanx

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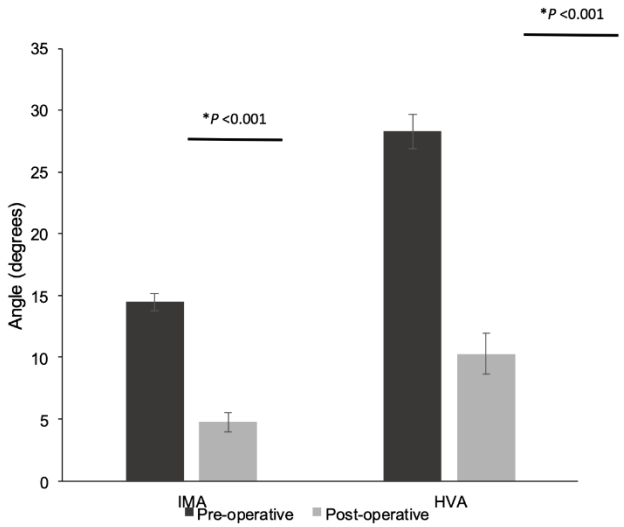
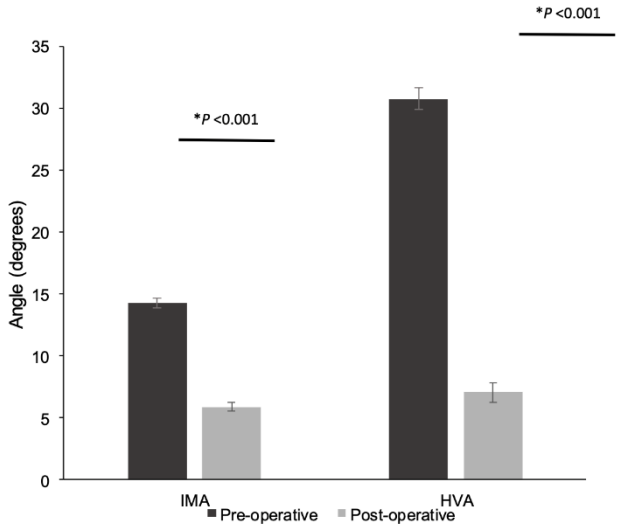
	Pre-operative	Post-operative	*p*-value*
	Mean (± SD)	**Mean (± SD)**	
MICA/MIC osteotomy			
IMA angle, degrees (n=55)	14.47 (± 2.52)	4.75 (± 2.88)	**<0.001****
HVA angle, degrees (n=55)	28.27 (± 5.34)	10.29 (± 6.35)	**<0.001****
Scarf/Akin osteotomy			
IMA angle, degrees (n=244)	14.25 (± 3.06)	5.85 (± 2.77)	**<0.001****
HVA angle, degrees	30.75 (± 7.02)	10.00 (± 6.49)	**<0.001****

MICA



Scarf/Akin



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Comparative table of outcomes to Kurashige (2021) demonstrated good correlation of our results as both studies had statistically significant improvements in the HVA and IMA P<0.001, furthermore our study had overall better correction of both HVA and IMA.

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Mean (± SD)	**Mean (± SD)**	
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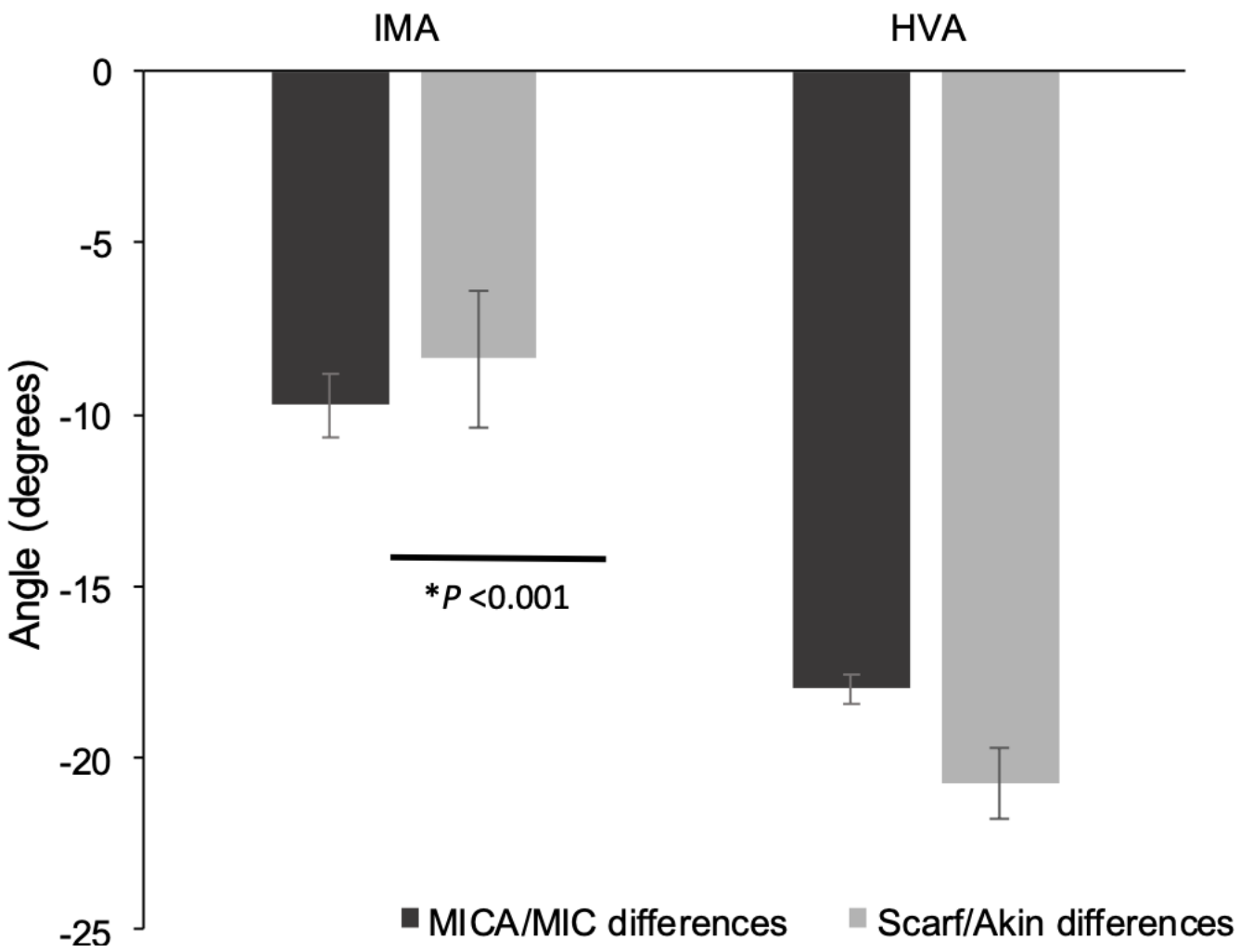
Scarf/Akin osteotomy		
IMA 14.25 (± 3.06)	5.85 (± 2.77)	**<0.001****
HVA 30.75 (± 7.02)	10.00 (± 6.49)	**<0.001****
Kurashige (2021)		
IMA 18.6 ± (11.4-27_	8.4 ± 2.9 (1.2-15)	**<0.001****
HVA ± 39.3 7.8 (24-54)	12.8 ± (4.9 (3-26)	**<0.001****



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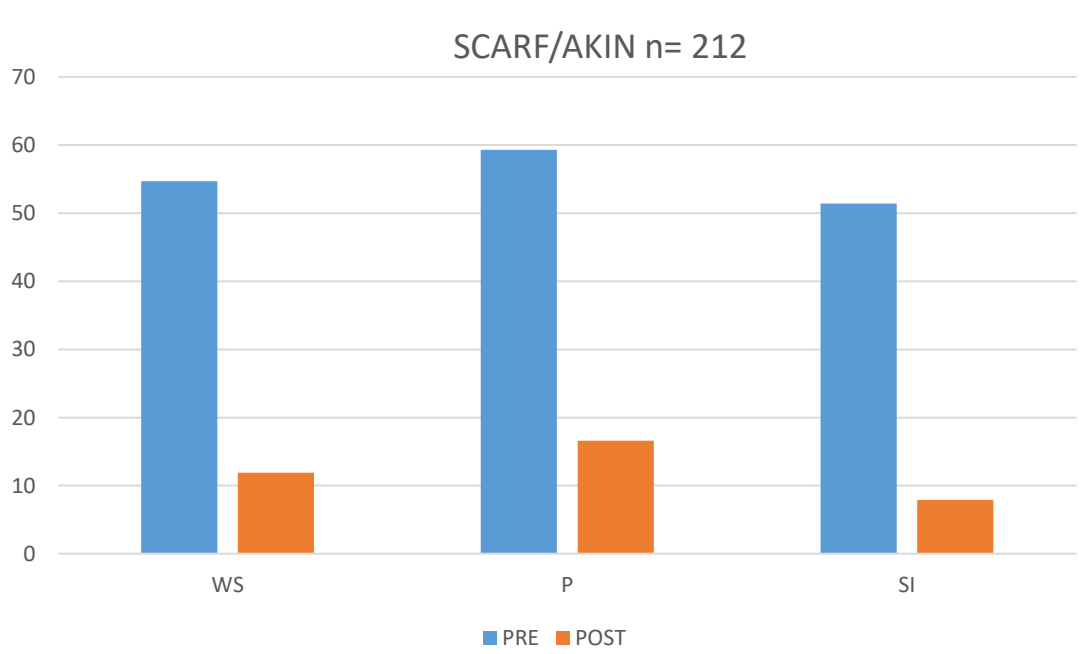

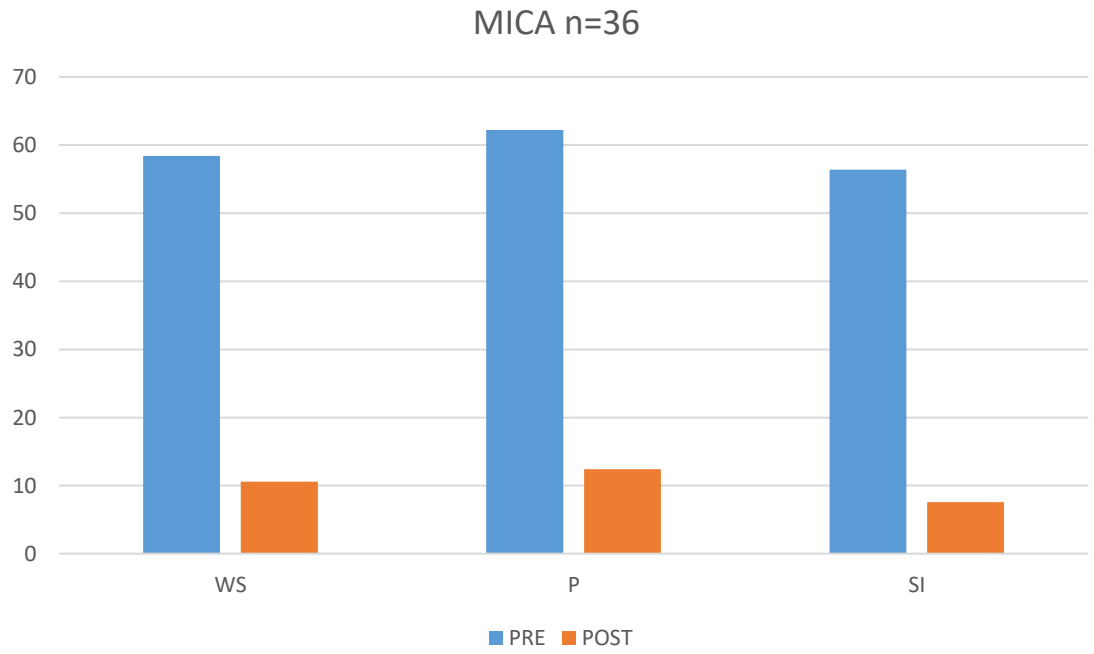

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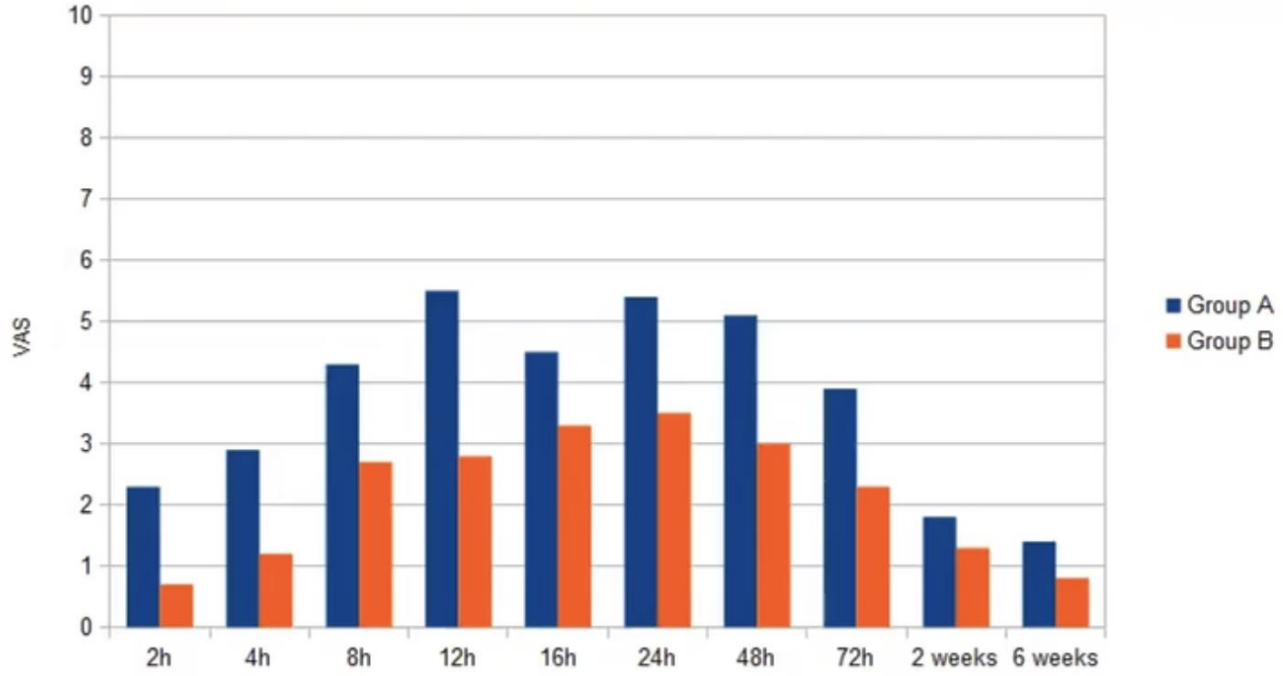

Open n=40
MICA N=40

Henryk Liszka

- MICA without bunionectomy is extraarticular! ROM
- MICA allows derotation and correction of pronation!
- MICA has a huge potentianl of correction (allows 100% of translation)
- MICA is less painfull then open scarf
- MICA= excellent outcome
- MICA maybe easier then you think!

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Conclusion

- It’s a steep initial learning curve
- Allow enough time initially
- outcomes are very similar to open surgery
- Patients experience less pain
- Activity return appears quicker
- Applications of MIS to wider foot are endless

Thank You

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