Osteotomias Distales Hallux Valgus

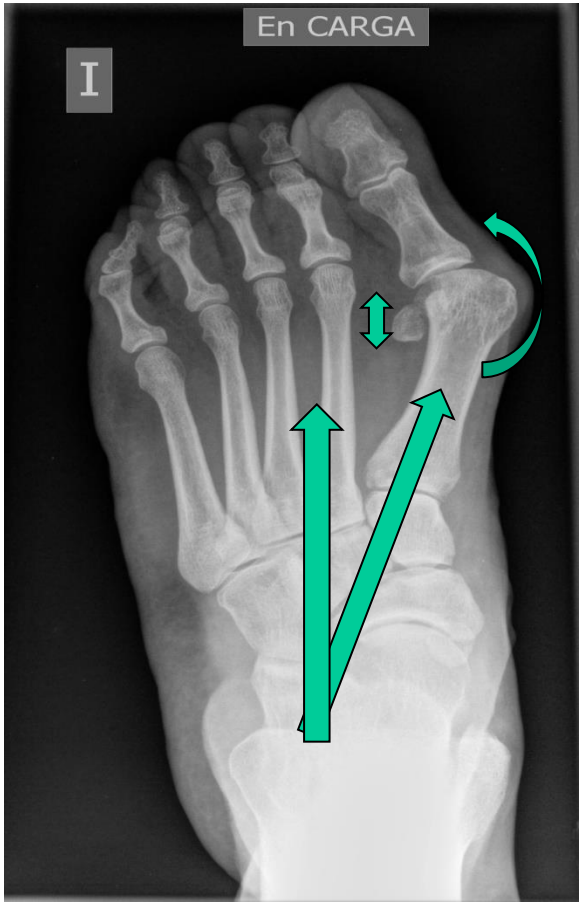
VIII CURSO
TEÓRICO PRÁCTICO
DE TÉCNICAS QUIRÚRGICAS
EN CIRUGÍA DE PIE Y
TOBILLO

Roberto de los Mozos
Unidad de Pie y Tobillo
Cirugía Ortopédica y Traumatología. H.Universitario de Alava

Objetivos de nuestra cirugía

- **Desequilibrio Abd/Add**

- **Metatarso Varo**



Objetivos de nuestra cirugía

- **Laxitud ligamentosa - CM**

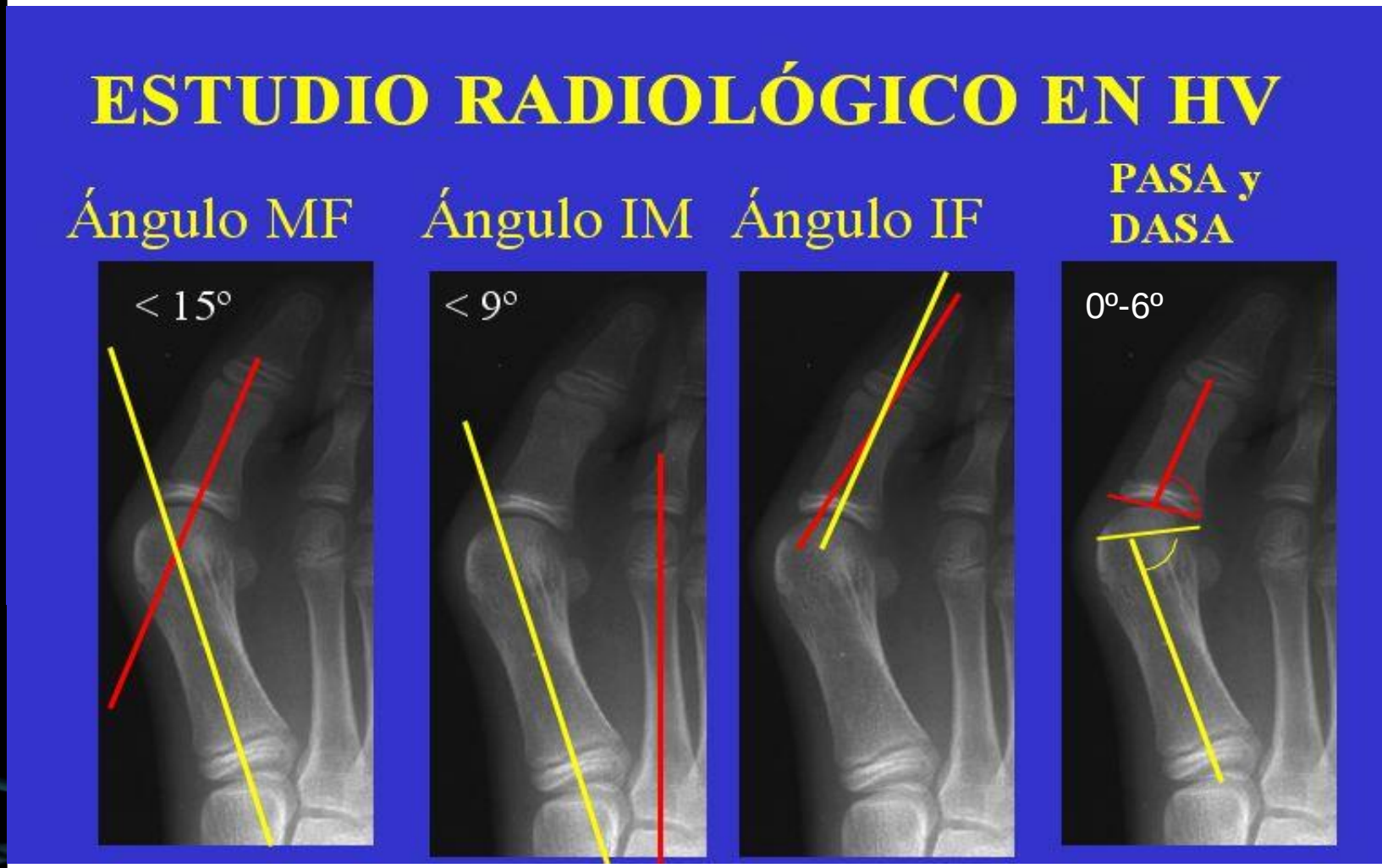
- **Estilo de vida**

Objetivos de nuestra cirugía

TABLE I Potential Intrinsic and Extrinsic Factors

Extrinsic	Intrinsic
High-heeled narrow shoes	Genetics
Excessive weight-bearing	Ligamentous laxity
	Metatarsus primus varus
	Pes planus
	Functional hallux limitus
	Sexual dimorphism
	Age
	Metatarsal morphology
	First-ray hypermobility
	Tight Achilles tendon

Individualización



Individualización

	HV leve	HV Moderado	HV grave
AIM	< 11º	11 - 18º	> 18º
AHV	< 20º	20 - 40º	>40º

Aspectos Biomecánicos OD

Capacidad Correctora

13-14 mms
5-6 mms traslación
1 mms –1º

Aspectos Biomecánicos OD

Capacidad Correctora

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Foot & Ankle International January 1985 vol. 6 no. 1 7-17

The Risks and Benefits of Distal First Metatarsal Osteotomies

Peter J. Meier, M.D., Resident*
John E. Kenzora, M.D., Director†

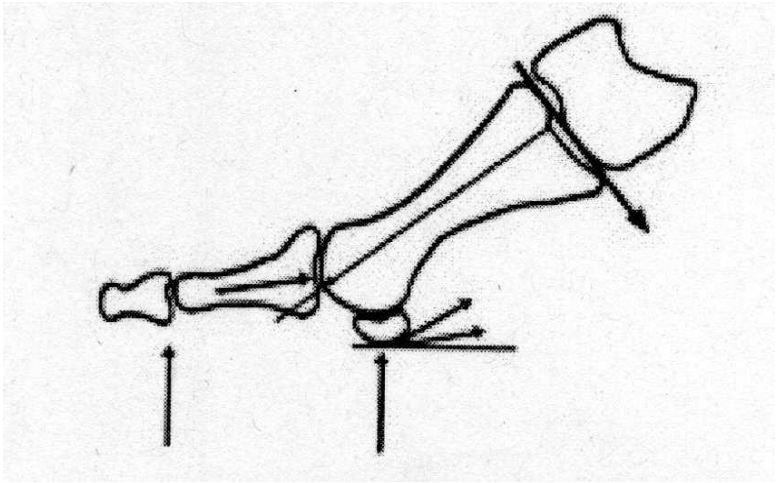
* Orthopaedic Surgery, University of Maryland Hospital, 22 South Greene St., Baltimore, Maryland 21201.
† Painful Foot Center, University of Maryland Hospital, 22 South Greene St., Baltimore, Maryland 21201.

Meier, Kenzora
FAI 1985

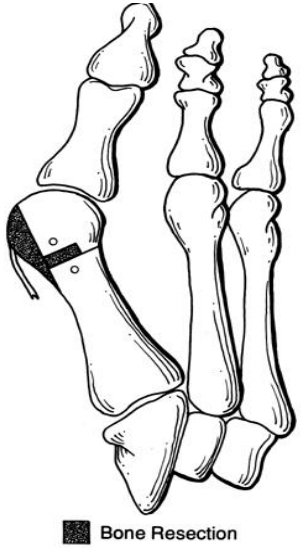
<12º --- 94%
>12º --- 74%

Aspectos Biomecánicos OD

Estabilidad Osteotomía



Stokes

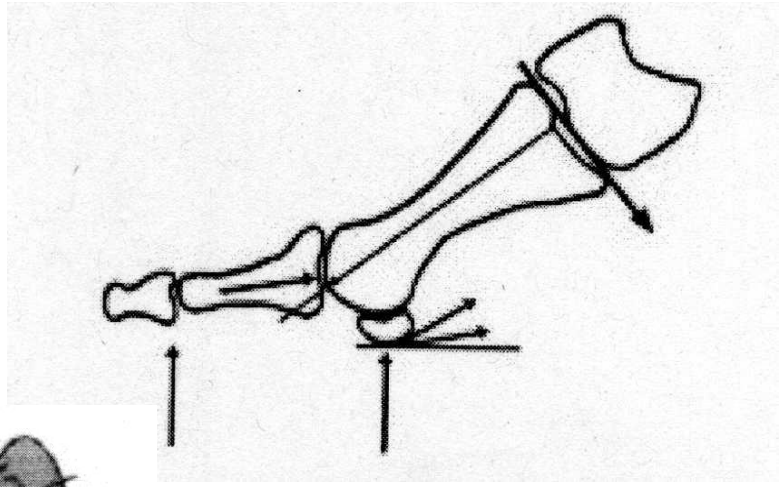


O. Mitchell

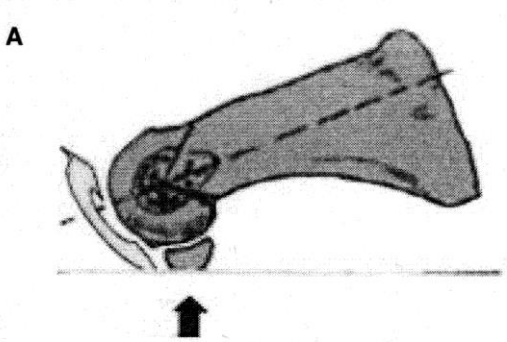
O. Wilson

Aspectos Biomecánicos OD

Estabilidad Osteotomía

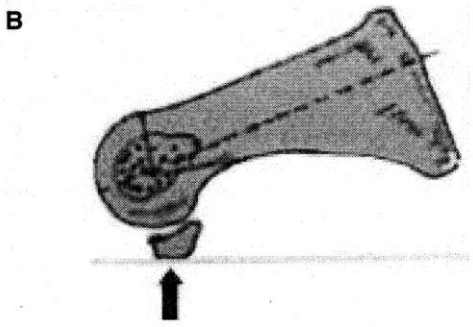


Stokes



70º

O. Chevron



90º

Aspectos Biomecánicos OD

Corrección PASA

8º

Resultados radiológicos de la osteotomía en *chevron* modificada por Johnson para la corrección del *hallux valgus*

J.E. Martínez Giménez, D. Bustamante Suárez de Puga, C.M. Verdú Román y A. Lizaur Utrilla
Servicio de Cirugía Ortopédica y Traumatología. Hospital General de Elda. Alicante. España.

Rev Ortop Traumatol. 2006;50:38-42

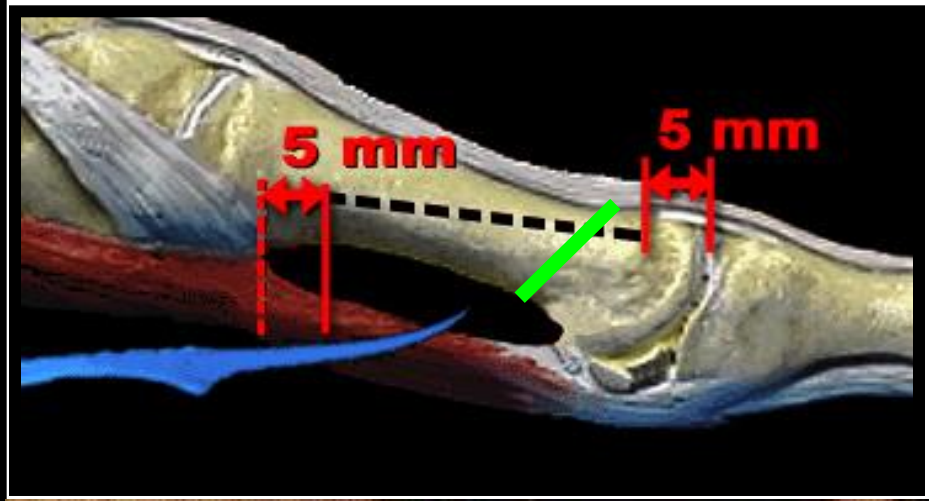
Aspectos Biomecánicos OD

Acortamiento

Metatarsalgia trasferencia 20- 40%
Mitchell --- media 7 mms / descenso cabeza plantar

Aspectos Biológicos OD

Vascularización M1



ON > Mitchell>Chevron

No liberación adductor?

Aspectos Biológicos OD

Vascularización M1

Foot & Ankle International
fai.sagepub.com

doi: 10.1177/107110070502600705
Foot & Ankle International **July 2005** vol. 26 no. 7 **526-529**

Blood Flow to the Metatarsal Head After Chevron Bunionectomy

Michael A. Kuhn, M.D.
Frederick G. Lippert III, M.D.
Michael J. Phipps, M.D.
Craig Williams, D.P.M.

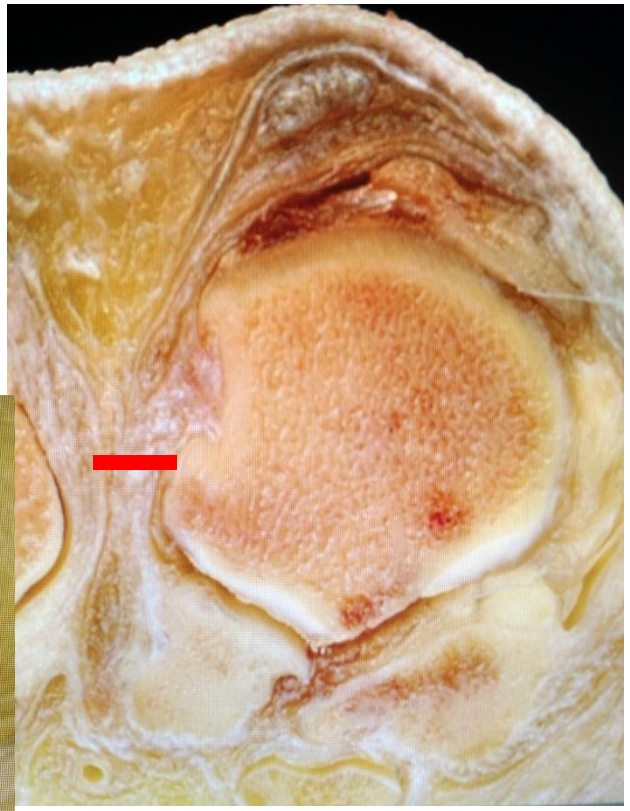
Orthopaedics, National Naval Medical Center, Bethesda, MD

Corresponding Author: Michael A. Kuhn, M. D., Orthopaedics, NNMC Bethesda, 8901 Wisconsin Avenue, Bethesda, MD 20889. E-mail: MAKKGK@msn.com

13%
13%
45%

ON > Mitchell>Chevron

No liberación adductor?



Indicaciones OD

HV doloroso con deformidad clínica moderada
Pacientes edad inferior 65 años
HV 20º-30º ángulo MTF

Angulo M1M2 2º - 4º

Angulo MTF 15º - 20º

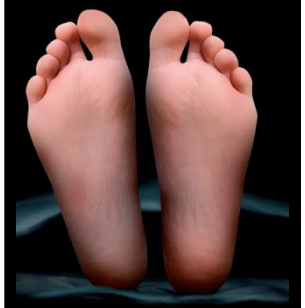
No corrige pronación

Corrección parcial sesamoideos

Contraindicaciones OD

Artrosis articular MTF
M1 corto
HV Severo
Articulación congruente con PASA > 15º
Osteoporosis > 60 años

Dogmático con OD?



■ FOOT AND ANKLE

Comparison of outcomes between proximal and distal chevron osteotomy, both with supplementary lateral soft-tissue release, for severe hallux valgus deformity

H-W. Park,
K-B. Lee,
J-Y. Chung,
M-S. Kim

From Chonnam National University Hospital and Medical School, Gwang-ju City, Korea

Bone Joint J
2013;95-B:510–16.
Received 20 July 2012; Accepted after revision 10 January 2013

110 pies
54 O. distal
56 O. proximal

Nivel osteotomía / AOFAS

Table II. Comparison of American Orthopaedic Foot and Ankle Society (AOFAS) hallux metatarsophalangeal-interphalangeal scores between proximal and distal chevron osteotomies

Mean (SD) AOFAS score	Proximal chevron	Distal chevron	p-value*
Pre-operative score (SD; range)	54.0 (11.9: 39 to 79)	56.6 (11.8; 39 to 75)	0.309
Pain subscale	21.3 (5.6)	23.0 (6.1)	0.484
Function subscale	30.2 (5.4)	31.0 (5.1)	0.613
Alignment subscale	2.5 (1.7)	2.6 (1.8)	0.509
Post-operative score (SD; range)	91.9 (5.6; 78 to 100)	92.7 (7.1; 75 to 100)	0.373
Pain subscale	36.8 (4.4)	37.4 (4.8)	0.342
Function subscale	40.6 (3.7)	41.0 (2.9)	0.661
Alignment subscale	14.5 (1.9)	14.3 (3.1)	0.697
p-value†	< 0.001	0.001	

* Mann-Whitney U test for comparison between groups
† paired *t*-test for comparison between pre- and post-operative total AOFAS score

Dogmático con OD?

THE BONE & JOINT JOURNAL

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Edad ?

Table III. Comparison of clinical and radiological outcomes between proximal and distal chevron osteotomy according to age

Mean (SD) outcome	Proximal chevron osteotomy			Distal chevron osteotomy		
	< 50 yrs (n = 22)	≥ 50 yrs (n = 34)	p-value*	< 50 yrs (n = 24)	≥ 50 yrs (n = 30)	p-value*
Pre-operative						
AOFAS score	58.1 (13.6)	56.3 (11.2)	0.689	60.6 (12.0)	55.4 (11.6)	0.175
Hallux valgus angle (°)	40.3 (7.7)	41.2 (7.5)	0.971	39.2 (5.8)	40.6 (5.9)	0.107
Intermetatarsal angle (°)	18.4 (2.4)	18.5 (4.0)	0.845	17.8 (0.9)	18.3 (2.0)	0.112
Tibial sesamoid position grade	2.9 (0.5)	3.0 (0.4)	0.457	2.8 (0.6)	3.0 (0.3)	0.261
Post-operative						
AOFAS score	91.1 (7.1)	90.4 (7.3)	0.796	94.6 (6.6)	90.9 (8.1)	0.195
Hallux valgus angle (°)	12.0 (6.8)	12.9 (4.9)	0.296	12.8 (5.1)	13.3 (6.0)	0.901
Intermetatarsal angle (°)	7.5 (3.0)	8.2 (3.7)	0.731	8.2 (2.3)	8.5 (3.9)	0.212
Tibial sesamoid position grade	1.4 (0.6)	1.6 (0.5)	0.135	1.4 (0.5)	1.5 (0.6)	0.113

* Mann-Whitney U test
† AOFAS, American Orthopaedic Foot and Ankle Society hallux metatarsophalangeal-interphalangeal score

Dogmático con OD?

THE BONE & JOINT JOURNAL

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54 O. distal
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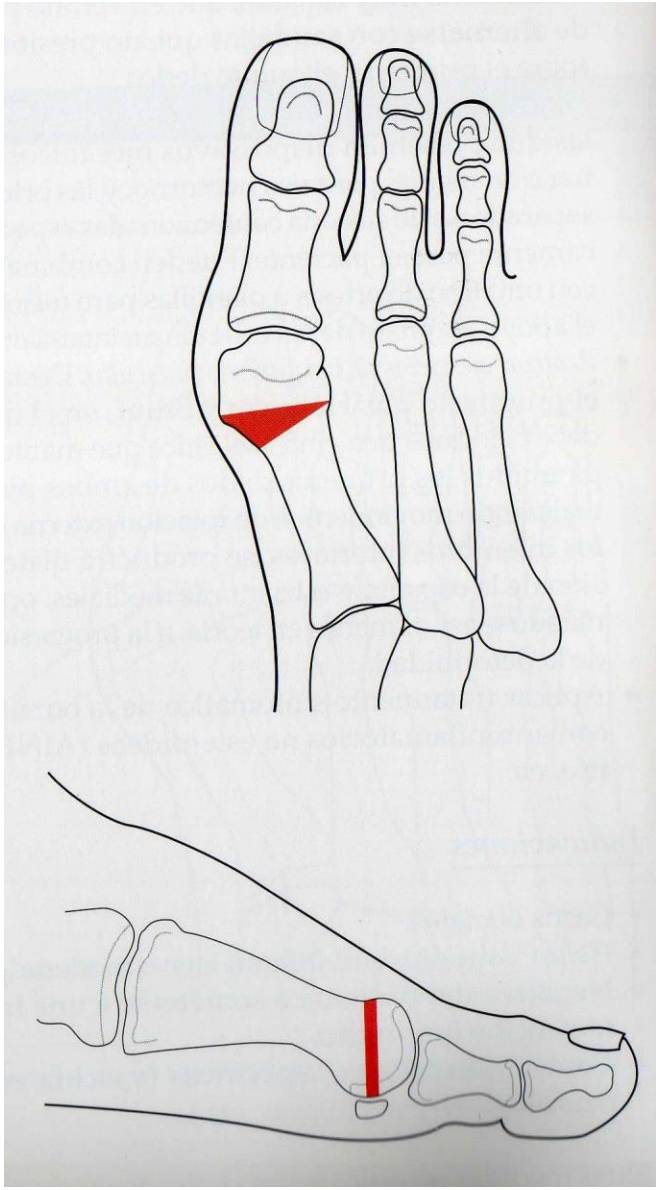
Comparativas Angulos ?

Table V. Current outcome studies of various osteotomy for severe hallux valgus deformities

Author/s	Patients (feet) (n)	Osteotomy	Mean hallux valgus angle (SD/range)		Mean intermetatarsal angle (SD/range)		Mean AOFAS score* (SD/range)	
			Pre-op	Post-op	Pre-op	Post-op	Pre-op	Post-op
Abbühl et al[24]	54 (70)	Basal valgus	41	16	14	8	N/A	N/A
Tanaka et al[25]	39 (51)	Proximal spherical	46 (5.6)	12 (9.1)	19 (2.3)	5.9 (3.5)	38 (14)	85 (16)
Okuda et al[26]	41 (54)	Proximal crescentic	40.3 (8.3)	15.5 (0.4)	19.2 (2.0)	8.9 (4.0)	56.0 (5.8)	95.6 (5.1)
O'Donnell et al[27]	26 (26)	Basal chevron	49 (38 to 58)	17 (4 to 24)	23.9 (20 to 29)	13 (6 to 16)	24 (17 to 40)	82 (42 to 100)
Perugia et al[28]	33 (45)	Shaft	32.1 (6.4)	11.0 (1.8)	18.3 (3.4)	8.4 (1.6)	35.7 (15.1	89.8 (10.1)
Mean	38.6 (49.2)		41.7	14.3	18.9	8.8	38.4	88.1
Current study	56 (56)	Proximal chevron	41.0 (7.2)	12.2 (6.9)	18.8 (3.2)	7.7 (3.9)	54.0 (11.9)	91.9 (5.6)
	54 (54)	Distal chevron	39.9 (7.6)	12.9 (7.3)	18.0 (2.9)	8.3 (3.4)	56.6 (11.8)	92.7 (7.1)

* AOFAS, American Orthopaedic Foot and Ankle Society hallux metatarsophalangeal-interphalangeal score

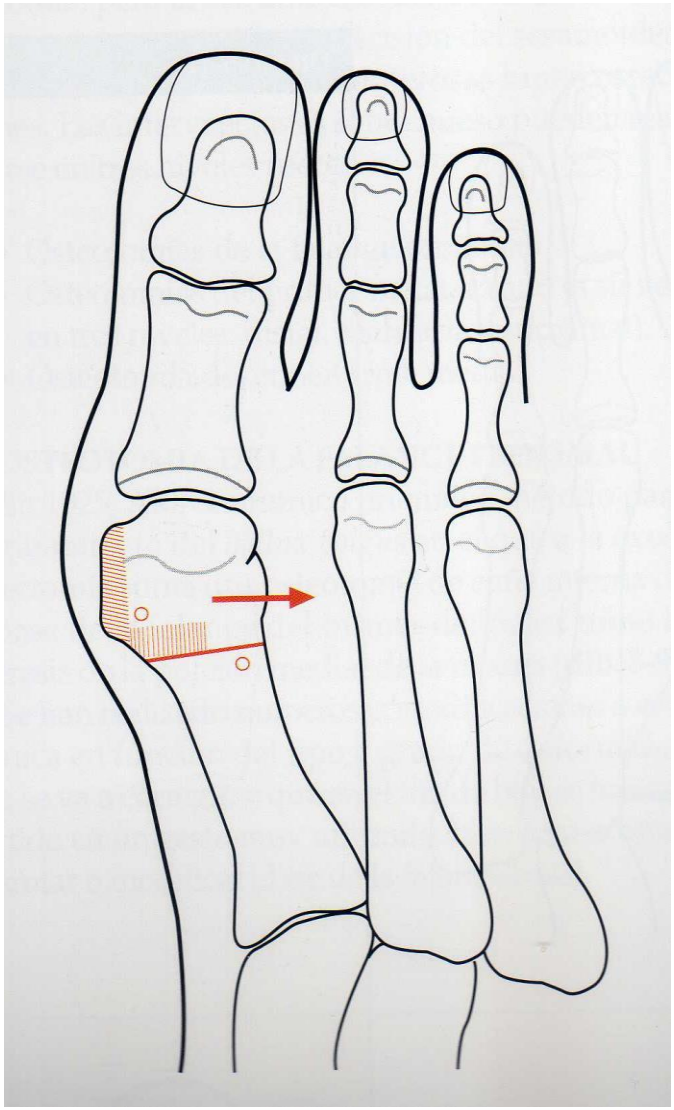
O. Reverdin



- 1881 JL Reverdin
- 1970 Funk y Wells

- Resección cuña base interna
- Inmediatamente detrás borde articular

O. Mitchell

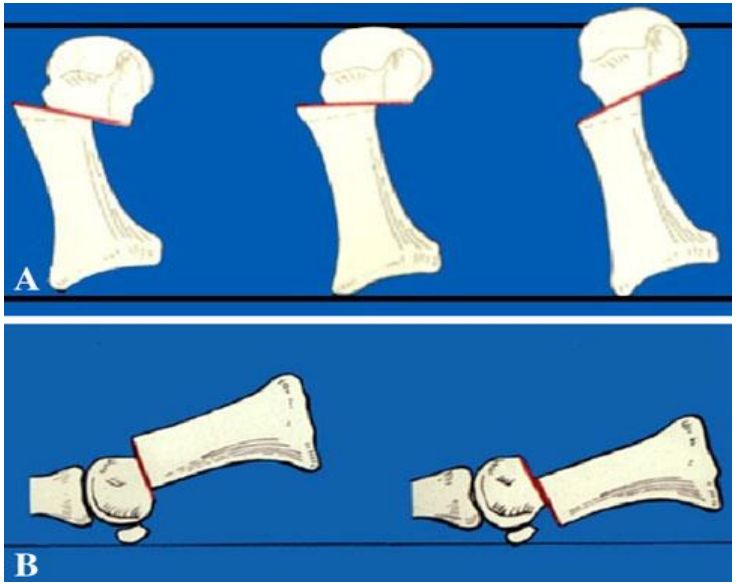


- 1945 Hawkins y Mitchell

- 1º perpendicular a diáfisis M1 2/3 espesor
- 2º completo 3 mms proximal al primero

- ON
- Pérdidas corrección
- Consolidación Viciosa

O.SERI – Boch - Kramer Técnica Quirúrgica



Rev esp cir ortop traumatol. 2010;54(3):174–178

Revista Española de Cirugía Ortopédica y Traumatología

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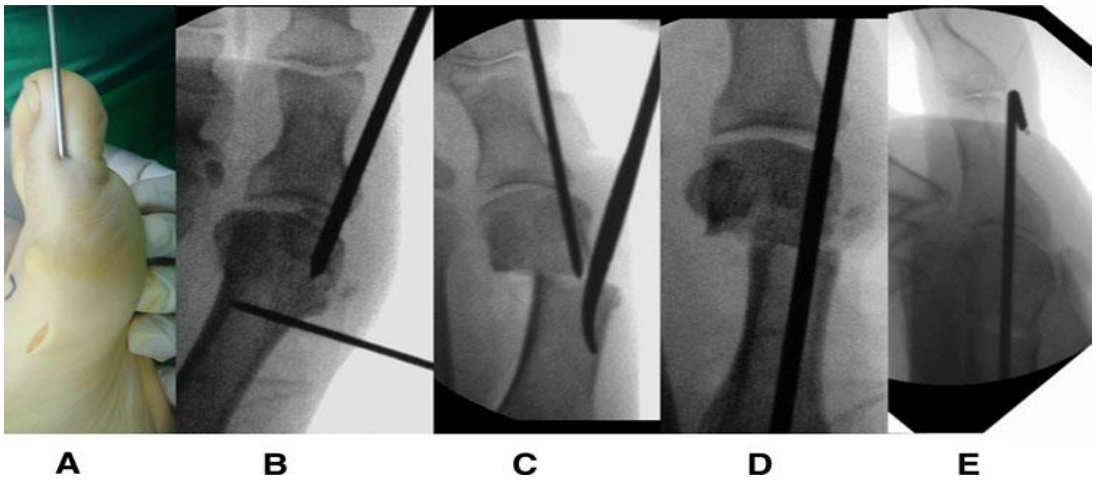
ELSEVIER DOYMA

ORIGINAL

Resultados a largo plazo de la osteotomía percutánea del metatarso distal (técnica de Bösch modificada) para la corrección del hallux valgus

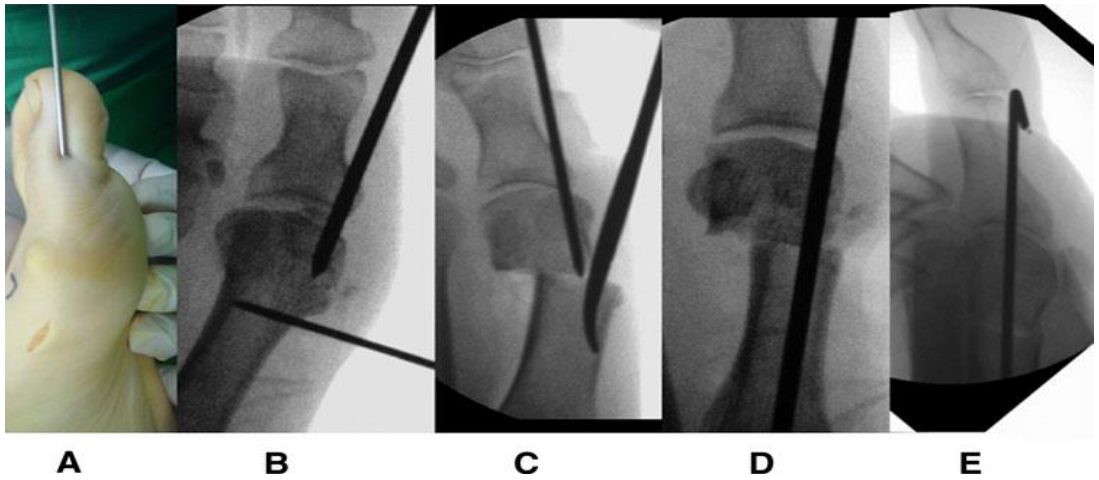
J. Merino Pérez*, I. Ibor Ureña, J.M. Rodríguez Palomo, L.M. Fernández Rioja, N. Martín Larrañaga y J.I. Vicinay Olabarria

Departamento de Patología del Aparato Locomotor, Hospital de Cruces, País Vasco, España

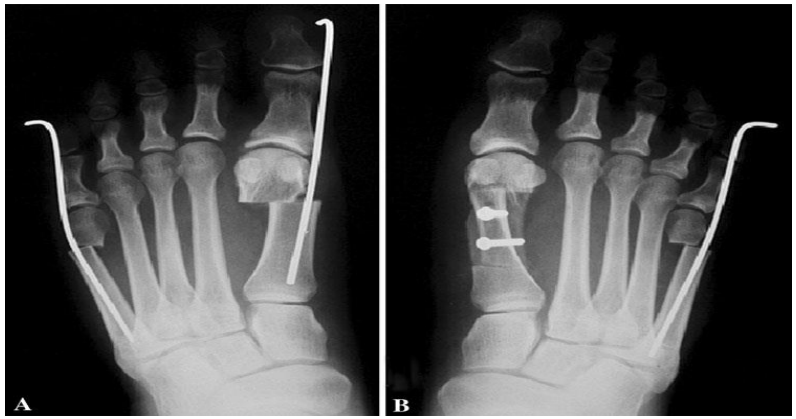


70 pies
AOFAS 87

O.SERI - Boch - Kramer Técnica Quirúrgica



O.SERI vs Scarf
Simple/efectiva/rápida/económica vs Scarf



Clin Orthop Relat Res (2013) 471:2305–2311
DOI 10.1007/s11999-013-2912-z

Clinical Orthopaedics and Related Research®
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CLINICAL RESEARCH

The SERI Distal Metatarsal Osteotomy and Scarf Osteotomy Provide Similar Correction of Hallux Valgus

Sandro Giannini MD, Marco Cavallo MD,
Cesare Faldini MD, Deianira Luciani MD,
Francesca Vannini MD, PhD

Received: 7 September 2012 / Accepted: 4 March 2013 / Published online: 14 March 2013

20 pacientes
AOFAS similar

O.SERI vs Scarf

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Clinical Orthopaedics and Related Research®
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- Menor incisión y tiempo quirúrgico
- Menor coste económico
- No EMO
- AOFAS y estudio rx similares.

O.SERI vs Scarf

Foot and Ankle Surgery 21 (2015) 37–41

Contents lists available at ScienceDirect

Foot and Ankle Surgery

journal homepage: www.elsevier.com/locate/fas

Comparison of postoperative costs of two surgical techniques for hallux valgus (Kramer vs. scarf)

Daniel Poggio [a,*], Rodrigo Melo [b], Julio Botello [c], Carlos Polo [c], Pablo Fernández de Retana [d], Jordi Asunción [a]

[a] Foot and Ankle Unit, Department of Orthopaedic Surgery, Hospital Clínic, Barcelona, Spain
[b] Hospital Clínic and San Rafael Hospital, University of Barcelona, Spain
[c] University of Barcelona, Spain
[d] Hospital Clínic, Barcelona, Spain

- AOFAS al año
- Mejor SCARF

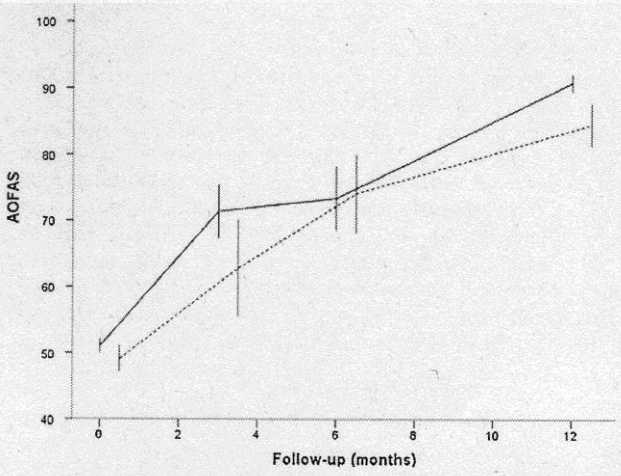

Fig. 2. Evolution of the AOFAS scale for Kramer (dotted line) and scarf (solid line). The results are expressed as means (±) 2 * standard error.

O.SERI vs Scarf

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[a] Foot and Ankle Unit, Department of Orthopaedic Surgery, Hospital Clínic, Barcelona, Spain
[b] Hospital Clínic and San Rafael Hospital, University of Barcelona, Spain
[c] University of Barcelona, Spain
[d] Hospital Clínic, Barcelona, Spain

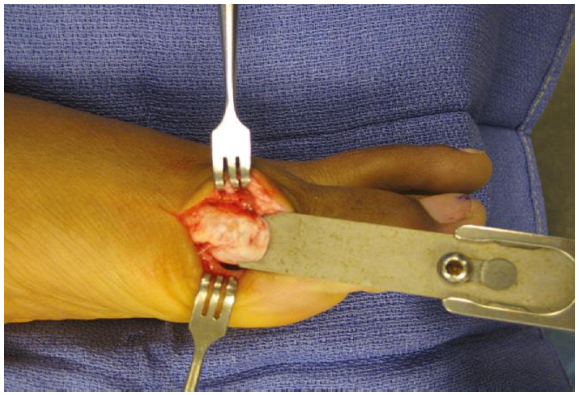
Table 3
Analysis of type and number of visits.

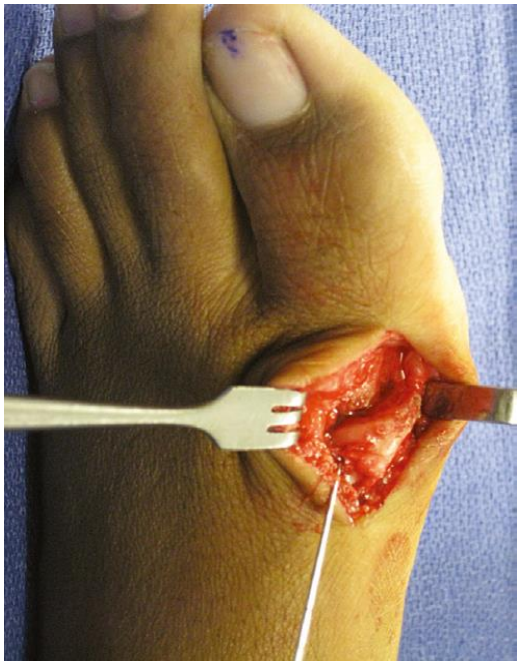
Type of visit	Type of osteotomy			
	Kramer		Scarf	
	$n = 69$ ft. No.	Rate (no. visits per case in 12 months of follow-up)	$n = 133$ ft. No.	Rate (no. visits per case in 12 months of follow-up)
Postoperative care ($p < 0.05$)	289	4.1884	430	3.2331
First visit + follow-up or control visits	309	4.4783	610	4.5865
Emergency visits ($p < 0.05$)	24 (in 19 ft.)	0.3478	22 (in 14 ft.)	0.1654
Total ($p < 0.05$)	622	9.0145	1062	7.9850

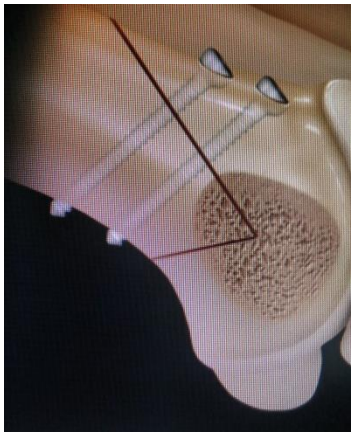
Table 2
Types and numbers of complications.

No. complications	Procedure	
	Kramer $n = 69$ ft.	Scarf $n = 133$ ft.
Hallux valgus relapse	3	1
Troughing with elevation	0	4
Transfer metatarsalgia	1	0
Long second toe	0	1
Excessive displacement of osteotomy	2	0
Fracture of first metatarsal	0	1
Delay in consolidation	3	0
CRPS	3	1
Superficial infection	5	1
Deep infection	2	0
Total (p value < 0.05)	19 (27.5%)	9 (6.7%)

O.Chevron Técnica Quirúrgica







O.Chevron vs Scarf

FOOT & ANKLE INTERNATIONAL
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DOI: 10.3113/FAI.2008.1209

Equivalent Correction in Scarf and Chevron Osteotomy in Moderate and Severe Hallux Valgus: A Randomized Controlled Trial

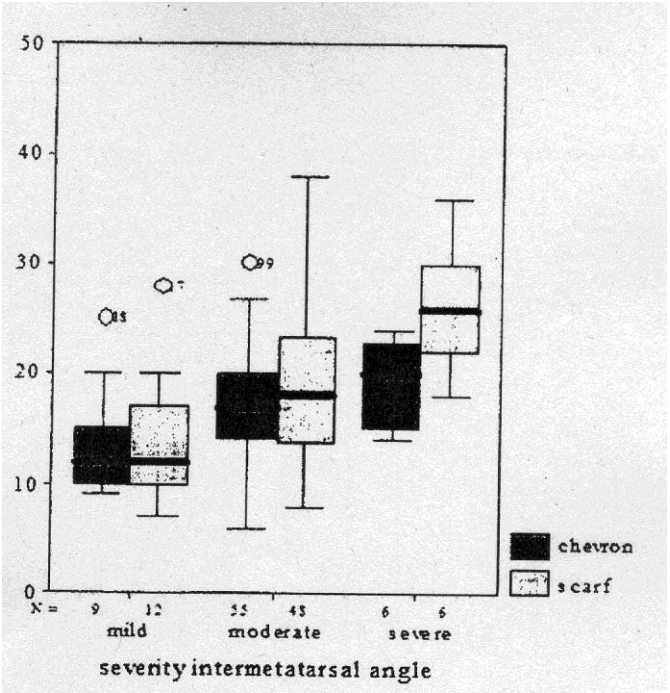
Axel Deenik, MD; Henk van Mameren, MD, PhD; Enrico de Visser, MD, PhD; Maarten de Waal Malefijt, MD, PhD; Frits Draijer, MD; Rob de Bie, MSc, PhD
The Hague, The Netherlands

Level of Evidence: I, Prospective Randomized Study

136 pies
66 O. Scarf
56 O. Chevron

Angulo M1M2 - MTF

- Similar formas leves – moderadas
- Mejor Chevron en HV severo



O.Chevron vs Scarf

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The Hague, The Netherlands

Level of Evidence: I, Prospective Randomized Study

AOFAS

Table 2: Overall group: Scarf versus chevron

Variable	Chevron ($N = 70$)	Scarf ($N = 66$)	p value
Hallux valgus angle			
Preoperative	30.5 ± 6.7	30.0 ± 6.9	0.66
Postoperative	17.2 ± 5.2	19.0 ± 7.7	0.12
Intermetatarsal angle			
Preoperative	13.4 ± 2.4	13.1 ± 2.6	0.49
Postoperative	9.5 ± 2.0	9.4 ± 2.2	0.65
Distal metatarsal articular angle			
Preoperative	13.0 ± 6.9	12.1 ± 6.8	0.47
Postoperative	12.4 ± 6.3	12.1 ± 6.8	0.80
Subluxated joint			
Preoperative	61	59	
Postoperative	5	7	
AOFAS			
Preoperative	46	47	0.61
Postoperative	86	88	0.38
Complications			
Avascular necrosis	3	0	
CRPS	1	7	

O.Chevron vs Scarf

FOOT & ANKLE INTERNATIONAL

DOI: 10.3113/FAI.2008.1209

Equivalent Correction in Scarf and Chevron Osteotomy in Moderate and Severe Hallux Valgus: A Randomized Controlled Trial

Axel Deenik, MD; Henk van Mameren, MD, PhD; Enrico de Visser, MD, PhD; Maarten de Waal Malefijt, MD, PhD; Frits Draijer, MD; Rob de Bie, MSc, PhD
The Hague, The Netherlands

Level of Evidence: I, Prospective Randomized Study

Riesgos

Table 2: Overall group: Scarf versus chevron

Variable	Chevron ($N = 70$)	Scarf ($N = 66$)	p value
Hallux valgus angle			
Preoperative	30.5 ± 6.7	30.0 ± 6.9	0.66
Postoperative	17.2 ± 5.2	19.0 ± 7.7	0.12
Intermetatarsal angle			
Preoperative	13.4 ± 2.4	13.1 ± 2.6	0.49
Postoperative	9.5 ± 2.0	9.4 ± 2.2	0.65
Distal metatarsal articular angle			
Preoperative	13.0 ± 6.9	12.1 ± 6.8	0.47
Postoperative	12.4 ± 6.3	12.1 ± 6.8	0.80
Subluxated joint			
Preoperative	61	59	
Postoperative	5	7	
AOFAS			
Preoperative	46	47	0.61
Postoperative	86	88	0.38
Complications			
Avascular necrosis	3	0	
CRPS	1	7	

O. Akin

- No aislada por alta tasa recidivas

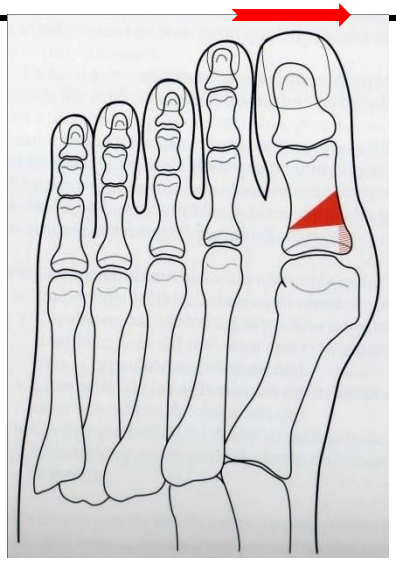
- Morfología triangular

- HV leves – moderados con pie griego – cuadrado

- Mínimo acortamiento, osteoclasia ----- no desrotación hallux

- Tras O. Distales:

    - Corrección DASA
    - Congruencia articular
    - Mejoría aspecto estético



O. Akin

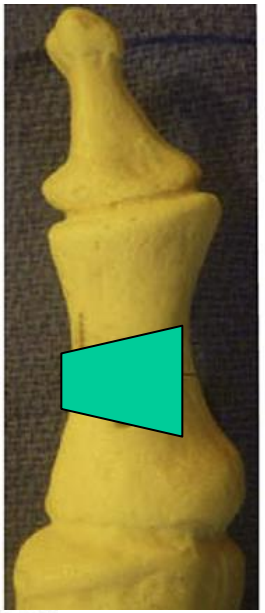
O. Acortamiento F1

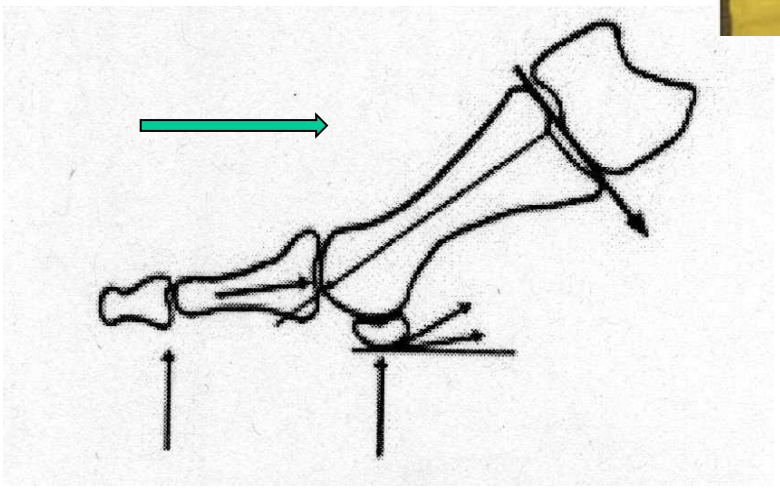
- Morfología trapezoidal - diafisaria

- HV leves – moderados

  - Con pie egipcio
  - Sin osteoclasia – desrotadora

- Acortamiento - ⇩ Brazo palanca fase impulso pie





Complicaciones osteotomias F1

Material osteosíntesis

Complicaciones osteotomias F1

Material osteosíntesis

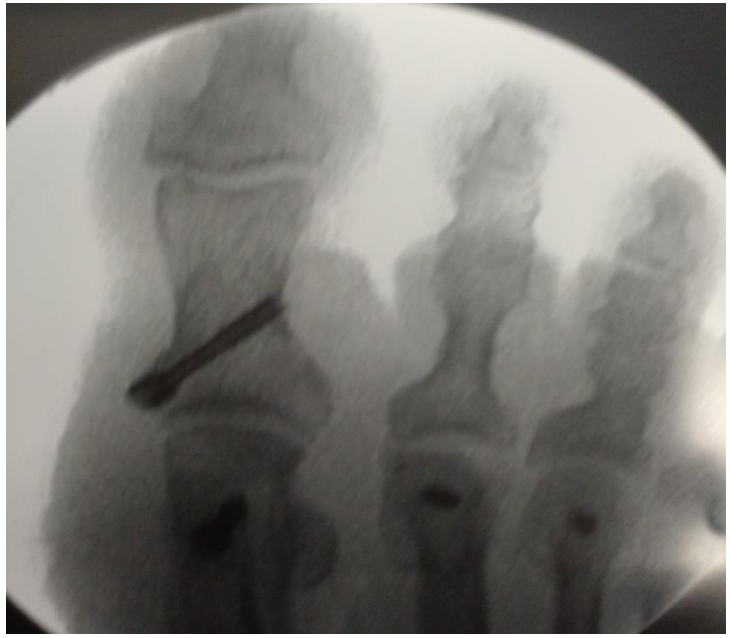
Conclusiones Osteotomías Distales en HV

- No son todas iguales biomecánicamente

- Diferentes complicaciones

- O. Chevron equiparable a O.Scarf en HV Moderados

- Experiencia cirujano amplia posibilidades y mejora resultados



Futuro …….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LAST TIME DEPARTED
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Muchas gracias