Hallux Limitus/Rigidus: Salvage or Surrender?

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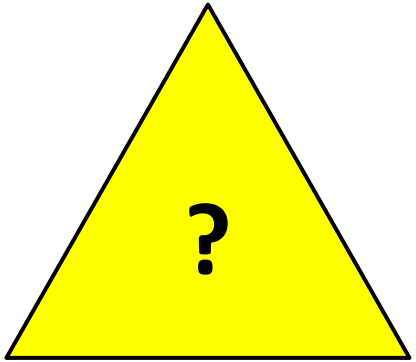
Financial Disclosures

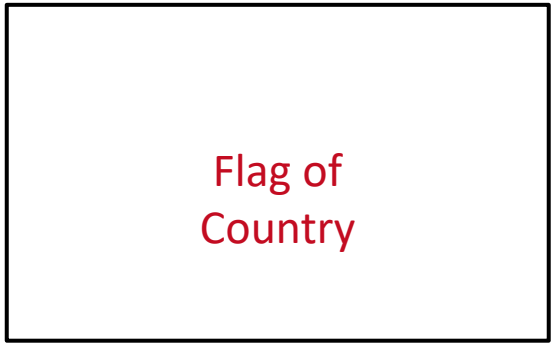
- None

Guide for Slides



- Represents level of study

- Movie from Country
- Can be director or based in Country



Arthrodesis or Total Replacement Arthroplasty for Hallux Rigidus: A Randomized Controlled Trial

Alastair Gibson et al. in 2005 in FAI

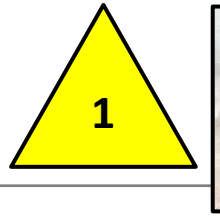


Table 5: Radiographic results

Arthrodesis	6 months ($n = 36$)	12 months ($n = 36$)
Fused	30 (83 %)	36 (100%)
Not fused	6 (17%)	0
Arthrodesis angle — valgus (°) ± (SD)		9 ± 6
Arthrodesis angle — dorsiflexion (°) ± SD		26 ± 7
Arthroplasty	**6 months ($n = 36$)**	**12 months ($n = 36$)**
Phalangeal radiolucency		
No lucency	32 (89%)	19 (50%)
Stem	0	1(3%)
Basal	0	8 (21%)
Both	4 (11%)	5 (13%)
Phalangeal coronal anglulation (°) ± SD	1.0 ± 2.9	1.8 ± 4.6

Values are numbers (%) or means ± SD. Arthroplasty data includes 6 joints revised.

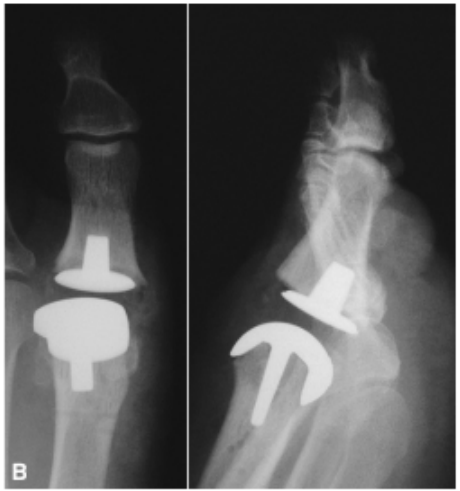


Table 6: Estimated comparative costs (£)

	Arthrodesis – ISD code W0330	Arthroplasty – ISD code W5700
Inclusive care price*	1850	2900
Implant cost	35	600
Revision surgery factor**	1.05	1.15
Total – direct costs	**1980**	**4025**

*Based on British United Provident Association (BUPA) rate October 2003 — fee includes 2 nights' hospital accommodation, surgical fees and two postoperative clinic visits
**1+ (% readmission/100).

Table 4: Clinical assessment after surgery

	Arthrodesis ($n = 34$)	Arthroplasty ($n = 36$)	Arthrodesis ($n = 34$)	Arthroplasty ($n = 36$)	Arthrodesis ($n = 34$)	Arthroplasty ($n = 30/36$)
	6 months		12 months		24 months	
(1) Joint motion (degrees: means ± SD)						
First MTP joint — Active dorsiflexion		11 ± 7		15 ± 17		14 ± 16
Total range of movement		21 ± 12.5		26 ± 20		24 ± 20
(2) Function						
Satisfied	22	18	28	21	29	17
Satisfied with reservations	9	12	5	5	3	8
Not satisfied	3	6	1	10	2	11
Significance		n.s.		$p < 0.05$		$p = 0.002$
(3) Appearance						
Satisfied	27	23	28	25	32	25
Satisfied with reservations	6	10	5	4	2	4
Not satisfied	1	3	1	7	0	11
Significance		n.s.		$p < 0.05$		$p < 0.01$

Values are numbers of participants unless stated otherwise. Clinical data includes 6 revisions (all not satisfied).

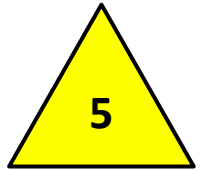
Table 2: Patient rating of joint pain (VAS scale 0 to 100)

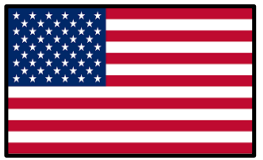
	Baseline	6 months	12 months	24 months	
Arthrodesis	62 ± 18	26 ± 22	14 ± 21	11 ± 16	$p < 0.001$*
Arthroplasty	60 ± 20	37 ± 20	34 ± 28	27 ± 28	$p < 0.001$*
Mann-Whitney U-test	$p = 0.9$	$p = 0.07$	$p = 0.005$*	$p = 0.01$*	

Comparisons between each arthroplasty group and arthrodesis, or with time (means ± SD). *Statistically significant.

The Case Against First Metatarsal Phalangeal Joint Implant Arthroplasty

DeHeer et al. in 2006 in Clinics in PMS





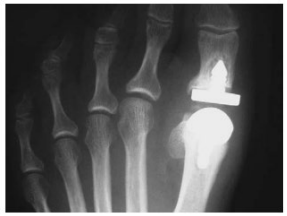


Fig. 4. Implant from Fig. 3 after 2 years with loosening of proximal phalanx compone
pre-dislocation syndrome of the second MPJ.

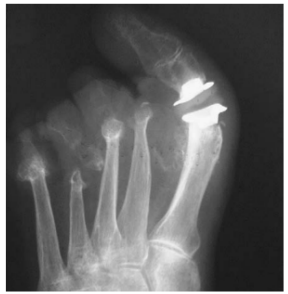


Fig. 15. Misaligned 1st MPJ implant used for rheumatoid foot correction.

The case against 1st MPJ implant arthroplasty is strong and well documented. The intermediate and long-term studies raise concerns about implant failure and longevity (Figs. 15 and 16). Silicone-induced synovitis and lymphadenopathy and the recent findings of the potential side effects of silicone should be causes for concern. The lack of any significant long-term results and the documented metallic breakdown from the two-piece metallic implants also make their use in hallux rigidus questionable. This information, combined with the comparative study showing the superiority of arthrodesis to implant arthroplasty, closes the case against 1st MPJ implant arthroplasty. Other reasons to avoid implant arthroplasty are emerging with possible alternatives to joint-destructive procedures, such as arthrodiastasis and the OATS procedure, which with further study may become viable alternatives. Clearly, implant arthroplasty is not the best treatment for patients with hallux rigidus or other 1st MPJ pathology.

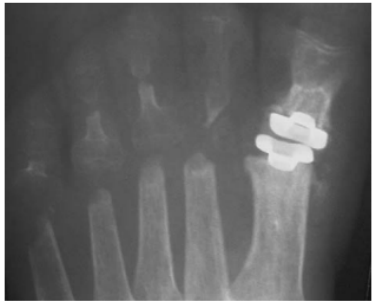


Fig. 1. Fractured double-stem silicone implant.

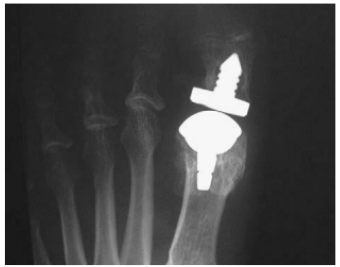


Fig. 2. Failed two-piece implant with cystic changes in the proximal phalanx and misalignment of the implant.

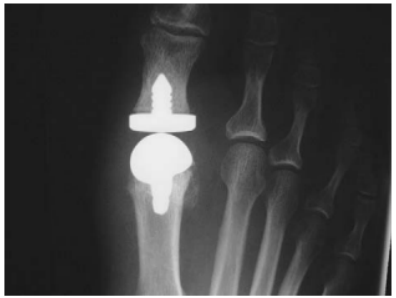


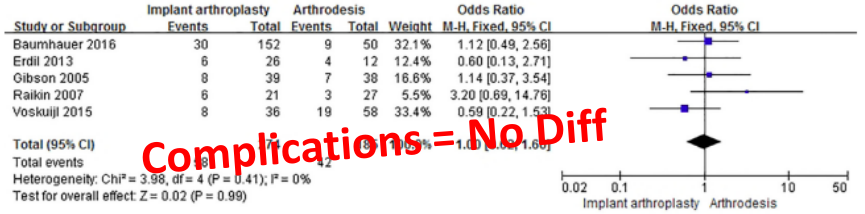
Fig. 3. Two-piece implant immediately following operation.

Implant Arthroplasty versus Arthrodesis for the Treatment of Advanced Hallux Rigidus: A Meta-analysis of Comparative Studies

Park et al. in 2019 in JFAS

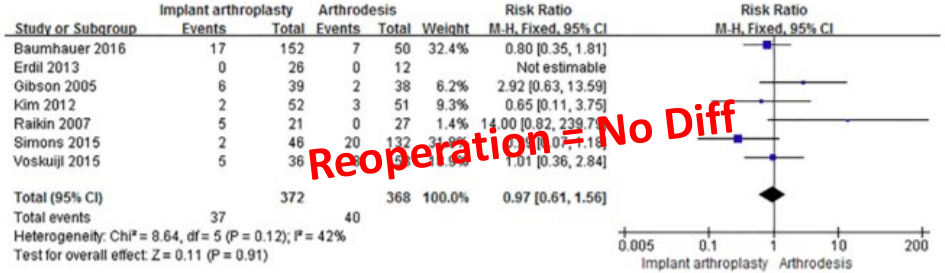
3

Patient satisfaction = No Diff

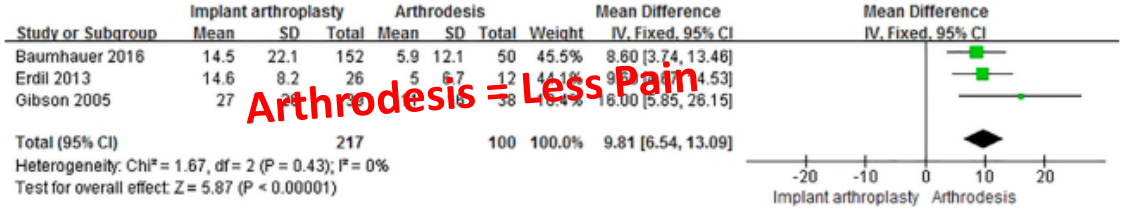


Complications = No Diff

Fig. 6. Forest plot of complications. CI, confidence interval; SD, standard deviation.



Reoperation = No Diff



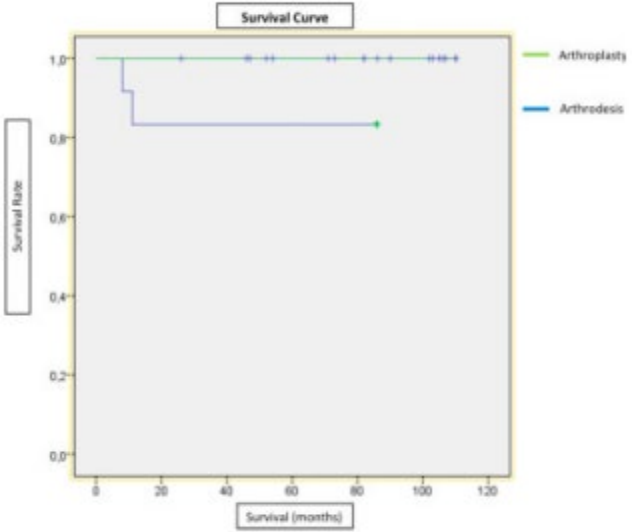
Arthrodesis = Less Pain

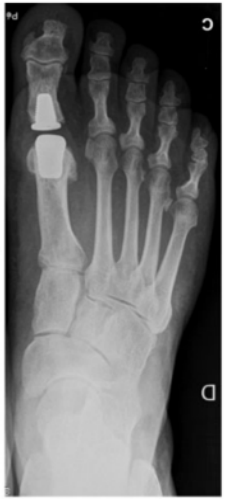
Problems:

- Only 7 studies
- Different Implants
- No subgroup analysis of implants

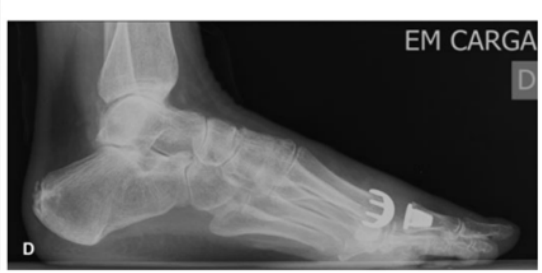
Arthrodesis versus Arthroplasty of the First Metatarsophalangeal Joint in the Treatment of *Hallux Rigidus* – A Comparative Study of Appropriately Selected Patients*

Santos Silva et al. in 2020 in Rev Bras Ortop





SCORES	Arthrodesis ($n = 12$)			Arthroplasty ($n = 26$)			*p-value**
	Preop	Postop	*p-value*	Preop	Postop	*p-value*	
AOFAS-HMI	40.2 (37–50)	65.7 (55–77)	< 0.001	43.2 (34.1–53.1)	89.7 (67–100)	< 0.001	< 0.001
VAS	7.8 (5–10)	3.9 (0–6)	< 0.001	8.0 (5–10)	1.6 (0–3)	< 0.001	.002



Problems:

- Careful patient selection
- Retrospective, small number

Interposition Arthroplasty in the Treatment of End-Stage Hallux Rigidus

A Systematic Review

Di Caprio et al. in 2021 in FAS

3

Table 4.

Results Divided by Technique Subgroups.

Group	Technique	Age, y	Patients	Feet	Mean FU, mo	AOFAS pre	AOFAS post	AOFAS improvement	ROM pre	ROM post	ROM improvement	Dorsiflex pre	Dorsiflex post	Dorsiflex improvement	Joint space	% satisfaction	% complications	% metatarsalgia / stress fracture	% re-operations	% arthrodesis
A	Hamilton	57.6	72	86	19.7	61.2	88.5	27.3	36.5	60.3	23.7	8.8	44.9	36.1	2.8	84.8	94.2	32.7	3.8	1.9
B	MOKCIA	58.1	92	110	45.5		87.6		42.5	61.9	19.4	11.1	26.6	15.5		83.2	8.9	1.1	1.1	0.0
C	MOKCIA + distal flap	62.8	53	53	112.4		77.8		38.4	62.3	23.9	34.2	42.9	8.7	2.2	92.9	11.3	3.8	7.5	7.5
D	MOKCIA + other tissue	58.9	39	50	56.1	47.9	78.1	30.2				3.2	43.4	40.2		86.7				
E	Rescue procedures	54.7	38	39	20.8	99.1	81.5	22.4				13.4	43.0	29.6	2.3	100.0				
F	Other procedures	49.8	53	56	37.7	31.7	77.8	46.1	25.7	57.1	31.3	17.3	48.1	30.8	2.9	74.4				
Total	Total	57.2	347	394	49.3	51.5	87.0	35.5	37.5	65.0	27.5	12.5	40.0	27.5	2.7	84.6				

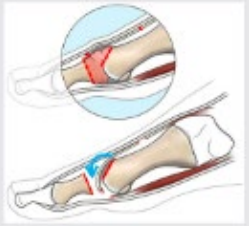
Abbreviations: MOKCIA, Modified Oblique Keller Capsular Interposition Arthroplasty; FU, follow-up; AOFAS, American Orthopaedic Foot and Ankle Society; ROM, range of motion.

Studies: 15 (4), 5 (3), 1 (5)

- Post-OP DF 12.5 to 40 w/ MOKCIA B = 26.6
- DF Imp: Worst MOKCIA B & C (15.5 and 8.7)
- General Complication Rate = 25.7%
- Rate of RO = 5%
- Conversion to Arthrodesis = 2.5%

Figure 1.

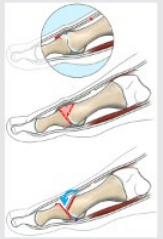
Hamilton arthroplasty involves a Keller resection of the proximal phalanx in association with a cheilectomy, implemented by the interposition of a dorsal capsular flap including the EHB, sutured to the stumps of the FHB. The EHB tendon is sectioned proximally to prevent the flap from tension during gait.



Abbreviations: EHB, extensor hallucis brevis; FHB, flexor hallucis brevis.

Figure 2.

MOKCIA arthroplasty involves a cheilectomy associated with a modified Keller oblique osteotomy to preserve the plantar part of the proximal phalanx with the insertion of FHB. A dorsal capsular flap was interposed, with included the EHB tendon sectioned proximally. This flap was sutured to the plantar plate distal to the sesamoids.



Abbreviations: EHB, extensor hallucis brevis; FHB, flexor hallucis brevis; MOKCIA, Modified Oblique Keller Capsular Interposition Arthroplasty.

Synthetic cartilage implant vs. first metatarsophalangeal arthrodesis for the treatment of hallux rigidus

Budde et al. in AOTS 2024

4

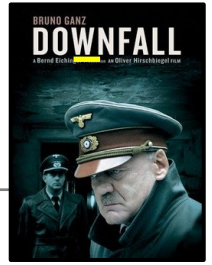


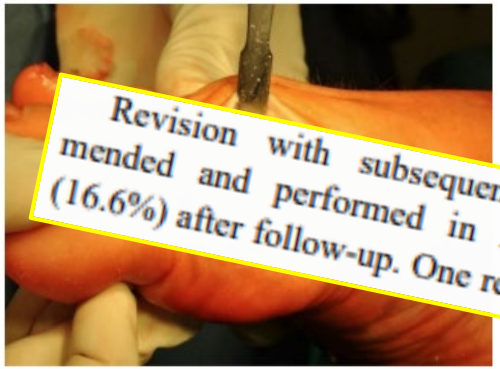
Table 4 Outcome parameters regarding pain-free and possible walking distance

		Cartiva SCI $n=18$			Arthrodesis $n=18$			Comparison between groups	
		Preoperative	Postoperative	Pre- vs. postoperative	Preoperative	Postoperative	Pre- vs. postoperative	Preoperative	Postoperative
	Scale 0–3	Number of patients		*p*-value	Number of patients		*p*-value	*p*-value	*p*-value
Pain-free walking distance	<0.5 km = 3	9	5	0.092	7	1	0.001	0.782	0.279
	0.5–2 km = 2	4	3		5	1			
	2–3 km = 1	2	0		3	4			
	> 3 km = 0	3	10		2	12			
	Mean (Scale)	2.06	1.17		2.00	0.50			
Possible walking distance	<0.5 km = 3	2	2	0.915	3	1	0.034	0.343	0.935
	0.5–2 km = 2	2	1		2	0			
	2–3 km = 1	2	3		3	5			
	> 3 km = 0	12	12		7	11			
	Mean (Scale)	0.67	0.61		1.07	0.47			

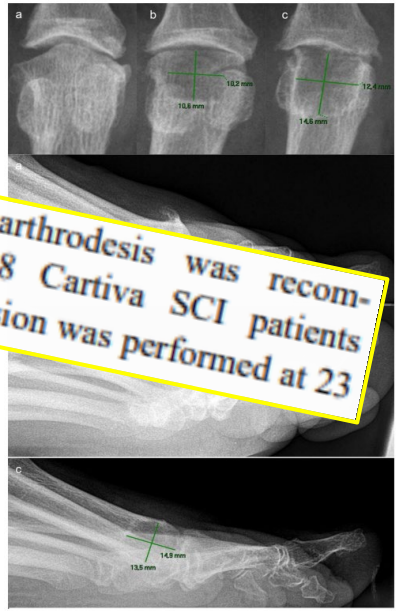
Table 5 Outcome parameters regarding pain

	Cartiva SCI $n=18$			Arthrodesis $n=18$			Comparison between groups	
	Preoperative	Postoperative	Pre- vs. postoperative	Preoperative	Postoperative	Pre- vs. postoperative	Preoperative	Postoperative
VAS 0–100	Mean (SD) Min-Max	Mean (SD) Min-Max	*p*-value	Mean (SD) Min-Max	Mean (SD) Min-Max	*p*-value	*p*-value	*p*-value
Pain on exertion	69.9 (18.0) 33.0–97.0	35.4 (25.7) 0.0–93.0	0.002	71.9 (14.4) 40.0–93.0	11.8 (14.6) 0.0–49.0	<0.001	0.839	0.004
Pain at rest	37.3 (32.3) 0.0–94.0	12.1 (18.2) 0.0–60.0	0.004	48.3 (29.1) 0.0–91.0	3.4 (8.3) 0.0–35.0	<0.001	0.265	0.171
Pain at night	24.1 (32.7) 0.0–89.0	3.8 (7.0) 0.0–29.0	0.007	28.9 (23.6) 0.0–94.0	1.9 (3.5) 0.0–12.0	0.001	0.195	0.406
Pain on start-up	48.3 (30.7) 0.0–99.0	16.4 (17.8) 0.0–63.0	0.003	56.1 (30.0) 3.0–95.0	5.3 (6.9) 0.0–20.0	<0.001	0.462	0.059

Abbreviations SCI, Synthetic Cartilage Implant; n, number; VAS, Visual Analog Scale; vs., versus; SD, Standard Deviation; Min, Minimum value; Max, Maximum value



Revision with subsequent arthrodesis was recommended and performed in 3/18 Cartiva SCI patients (16.6%) after follow-up. One revision was performed at 23



n = 18 for both

Mean f/u = 17m/20m

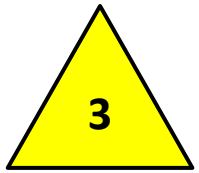
Table 6 Overview of the occurrence of various radiological abnormalities in Cartiva SCI patients

	Cartiva SCI $n=18$					
	Osteophyte neoplasm	Joint space narrowing	Bright sclerotic margins	Erosion of articular surface	Erosion of metatarsal bone	Enlargement of implant site
Number of patients	11 (61.1%)	10 (55.6%)	12 (66.7%)	10 (55.6%)	11 (61.1%)	6 (33.3%)

In parentheses: percentage of affected patients

A Comparison of PROMIS Scores of Metatarsophalangeal Joint Arthrodesis and Polyvinyl Alcohol Hydrogel Implant Hemiarthroplasty for Hallux Rigidus

El Masry et al. in JBJS in 2024



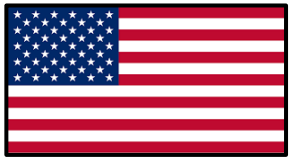


TABLE V Revision and Complication Data*

	SCI Hemiarthroplasty *(no. [%])*	MTP Joint Arthrodesis *(no. [%])*
Subsequent procedure	6 (7.3%)	16 (16%)
Removal of hardware	0 (0%)	13 (13%)
Revision	6 (7.3%)	3 (3%)
Conversion to arthrodesis	6 (7.3%)	0 (0%)
Infection	0 (0%)	1 (1%)

*SCI = synthetic cartilage implant, and MTP = metatarsophalangeal.

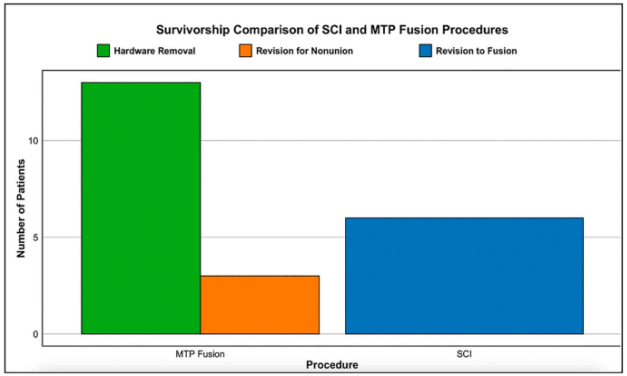


TABLE IV Adjusted 1-Year PROMIS Scores*

PROMIS Domain	SCI	MTP Joint Arthrodesis	Contrast†	Contrast P Value
Physical function	49.00 (46.81 to 51.18)	51.14 (48.99 to 53.29)	−2.14 (−4.24 to −0.04)	**0.045**
Pain interference	52.43 (49.79 to 55.06)	49.94 (47.48 to 52.40)	2.49 (0.03 to 4.95)	**0.047**
Pain intensity	44.35 (41.78 to 46.92)	41.28 (38.89 to 43.68)	3.07 (0.52 to 5.62)	**0.019**†
Global physical	53.53 (51.04 to 56.01)	54.27 (51.92 to 56.61)	−0.74 (−3.03 to 1.55)	0.524
Global mental	55.91 (53.68 to 58.14)	55.61 (53.45 to 57.78)	0.30 (1.79 to 2.39)	0.778
Depression	47.64 (45.79 to 49.48)	47.66 (45.79 to 49.54)	−0.03 (−1.83 to 1.78)	0.976

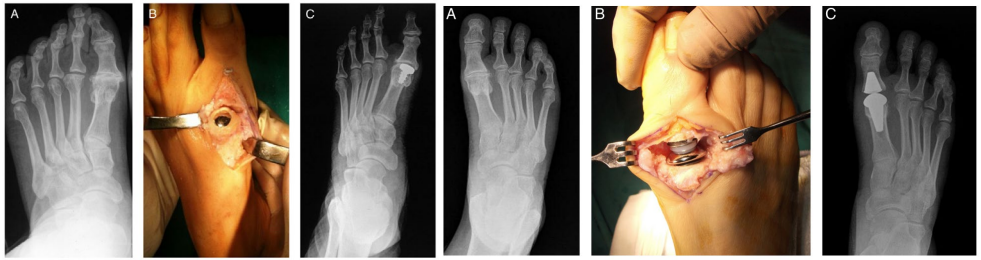
*Adjusted by preoperative PROMIS score, age, sex, and BMI. Data are presented as the mean (95% confidence interval [CI]); significance was defined as $p < 0.05$. Significant contrast values indicate a PROMIS difference that is statistically different from 0. PROMIS = Patient-Reported Outcomes Measurement Information System, SCI = synthetic cartilage implant, and MTP = metatarsophalangeal. †The difference in adjusted values between the cohorts is presented as SCI hemiarthroplasty minus MTP joint arthrodesis. ‡The contrast value is statistically different from 0, and the 95% CI also extends beyond the ±5 margin of difference (the predefined minimal clinically important difference [MCID]), indicating a difference that is clinically important according to this MCID.

Problems:

- Single institution
- Patients may or may not have filled out follow-up PROMIS surveys for various reasons

Comparison of Arthrodesis, Resurfacing Hemiarthroplasty, and Total Joint Replacement in the Treatment of Advanced Hallux Rigidus

Erdil et al. in JFAS in 2013



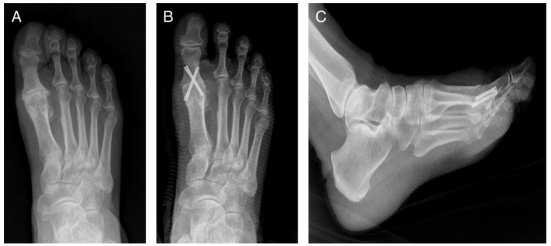


Table 2
Overall results for patients who underwent surgery for grade 3 to 4 hallux rigidus (N = 38 patients)

Variable	Total	Group A (TJR)	Group B (metatarsal head resurfacing hemiarthroplasty)	Group C (arthrodesis)
Patients (n)	38	12	14	12
Gender				
Female	27	8	9	8
Male	11	4	5	4
Mean age ± SD (y)	59.18	61.42 ± 7.45	58.14 ± 6.13	58.17 ± 8.45
Side				
Right	20	8	7	5
Left	18	4	7	7
Grade*				
III	5	2	2	1
IV	33	10	12	11
Tourniquet time (min)				
Mean	48.44	58.16	38.42	50.41
Range	30–71	50–71	30–60	43–66
Follow-up (mo)				
Mean	31.10	27.91	30.21	35.33
Range	24–66	24–41	24–42	24–66

Table 3
Results for patients who underwent surgery (total joint replacement, metatarsal head resurfacing hemiarthroplasty, or arthrodesis) for grade 3 to 4 hallux rigidus (N = 38 patients)

Group	AOFAS-HMI		VAS		MTP ROM	
	Preoperative	Postoperative	Preoperative	Postoperative	Preoperative	Postoperative
A: TJR (n = 12 feet in 12 patients)	45.42 ± 9.69	92.67 ± 7.39	7.67 ± 1.07	1.58 ± 0.67	15.08 ± 4.03	40.00 ± 8.79
B: Metatarsal head resurfacing hemiarthroplasty (n = 14 feet in 14 patients)	38.43 ± 6.71	86.14 ± 6.86	7.86 ± 0.66	1.36 ± 0.93	20.50 ± 9.10	47.86 ± 11.72
C: Arthrodesis (n = 12 feet in 12 patients)	33.58 ± 3.75	76.08 ± 5.66	8.00 ± 0.74	0.50 ± 0.67	13.25 ± 2.26	0

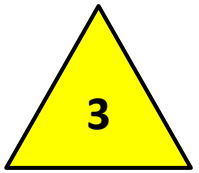
3

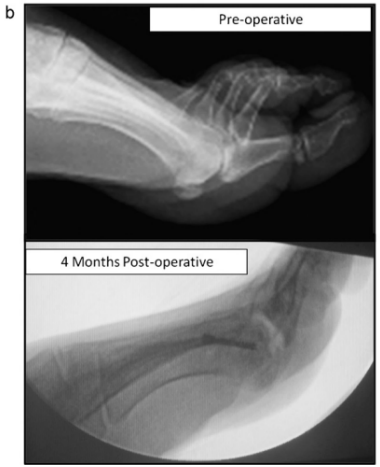
Problems:

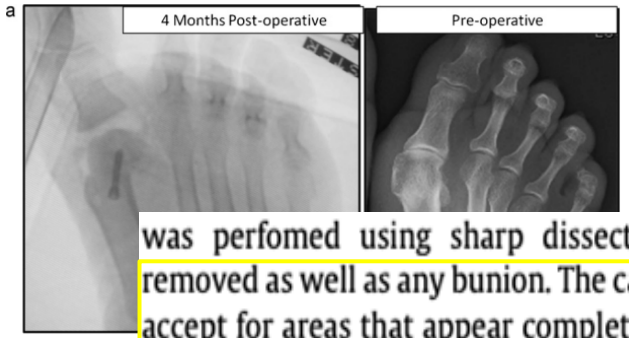
- Small n
- Functional outcomes only
- No survival rate

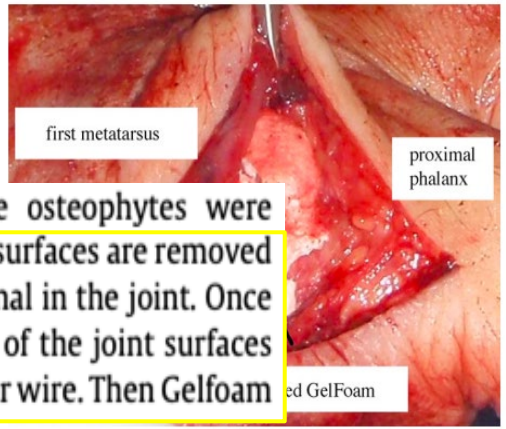
Gelfoam first metatarsophalangeal replacement/interposition arthroplasty–A case series with functional outcomes

Hellet et al. in The Foot in 2011









was perfomed using sharp dissection. The osteophytes were removed as well as any bunion. The cartilage surfaces are removed accept for areas that appear completely normal in the joint. Once the bone ends were removed, microfracture of the joint surfaces was performed by malleting a 1.8 mm Kirshner wire. Then Gelfoam

Table 1
Distribution of AOFAS-HMI[a] scale scores ($N = 31$ patients).

Variable	Student's *t*-test	Pre-operative Count (%)	Post-operative Count (%)
Pain (0–40 points)	$p < 0.01$	8 ± 8	32 ± 11
Function (0–10 points)	$p < 0.05$	2 ± 5	7 ± 3
Footwear requirements (0–10)	$p > 0.05$	2 ± 4	5 ± 2
Restriction of MTPJ motion (0–10)	$p > 0.05$	3 ± 3	6 ± 4
Restriction of IPJ motion (0–5)	$p > 0.05$	5 ± 1	5 ± 1
MTPJ–IPJ stability (0–5)	$p > 0.05$	5 ± 2	5 ± 1
Callus related to MTPJ and/or IPJ (0–5)	$p < 0.05$	2 ± 2	4 ± 1
Alignment (0–15)	$p < 0.01$	8 ± 3	15 ± 3

From Kitaoka et al. [10].
IPJ, interphalangeal joint; MTPJ, metatarsophalangeal joint.
[a] American Orthopaedic Foot & Ankle Society Hallux-Metatarsophalangeal-Interphalangeal score (minimum score 0, worst outcome; maximum score 100, best outcome).

- 31 patients, mean age 48
  - Grade: 1 (2), 3 (25), 4 (4)
- 2 year follow-up, 1 Revision to Arthrodesis
- No gross alignment (HVA 33 to 18)

Silicone Arthroplasty as an Alternative to Arthrodesis in the Metatarsophalangeal Degenerative Disease of Hallux Valgus—A 5-Year Observational Study

Lesman et al. in 2024 in Journal of Clincal Medicine

Table 1. The demographic comparison of arthrodesis vs. arthroplasty.

	Median (25–75%) Arthroplasty	Median (25–75%) Arthrodesis	*p*
BMI	25.4 (23.8–27.3)	25.9 (24.2–28.2)	0.66
HVA	14.0 (12.0–20.0)	20.0 (15.0–32.0)	0.23
IMA	9.0 (8.0–11.0)	13.0 (9.0–18.0)	0.42

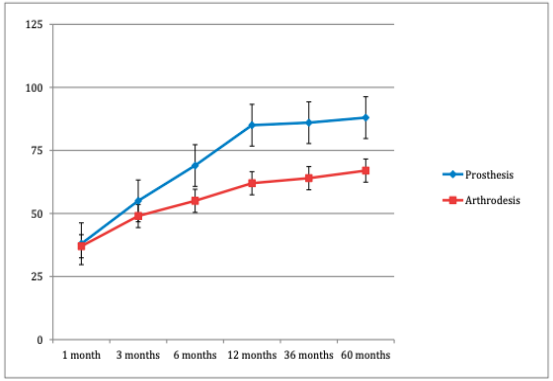


Figure 1. The declining trends in SEFAS scores.

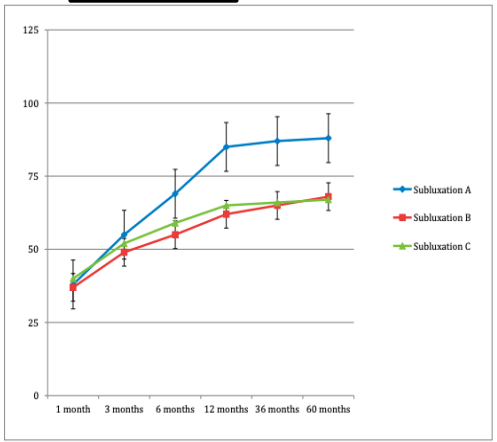


Figure 2. Correlation between sesamoid subluxation and the increase in AOFAS scores.

- Prospective, two-cohort trial
  - Inclusion: Grade 3 & 4, HVA 20-40 degrees (> 40 excluded)
  - Exclusion criteria: Osteoporosis, Rheumatoid
- 39 patients, avg age 64 years
- Avg follow-up 60 months

Table 2. The grade of subluxation (A—medium, B—high, C—highest).

	Grade A	Grade B	Grade C
Arthroplasty	15	3	3
Arthrodesis	7	5	6

Long-Term Follow-up of Arthrodesis vs Total Joint Arthroplasty for Hallux Rigidus

Stone et al. in 2017 in Foot & Ankle Int

1

Table 1. Complete Arthrodesis and Arthroplasty Cohorts.

	Arthrodesis (n=30)	Arthroplasty (n=36)	
	Mean (95% CI), Range	Mean (95% CI), Range	*P* Value[a]
Satisfaction	96.3 (92.8-99.8), 60-100	83.2 (76.2-90.3), 25-100	**.002**
Pain	5.3 (1.3-9.3), 0-40	17.2 (10.0-24.5), 0-70	**.013**
VAS-FA			
Overall	90.1 (85.9-94.2), 55-100	85.1 (79.1-91.2), 22-100	.273
Pain	91.6 (85.6-97.5), 30.8-100	85.0 (77.4-92.6), 7.5-100	.070
Function	90.4 (85.8-95.0), 50.9-100	85.3 (79.1-91.6), 18.2-100	.240
Other	88.3 (83.4-93.2), 48-100	84.8 (78.8-90.8), 38-100	.436

Table 2. Primary Arthrodesis vs Secondary Arthrodesis.

	Arthrodesis (n=30)	Failed Arthroplasty Revised to Arthrodesis (n=6)	
	Mean (95% CI), Range	Mean (95% CI), Range	*P* Value[a]
Satisfaction	96.3 (92.8-99.8), 60-100	49.2 (35.7-62.6), 25-60	**<.001**

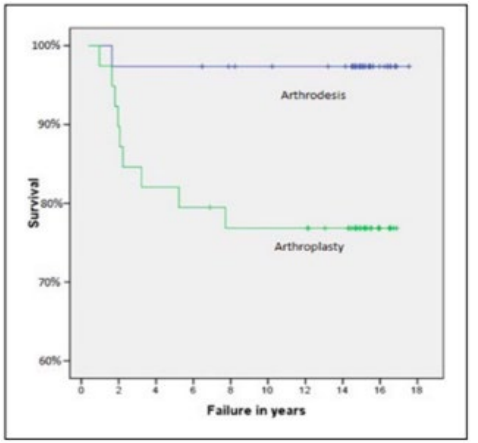


Table 3. Failed (Revised) Arthroplasty vs Successful (Nonrevised) Arthroplasty.

	Revised Arthroplasty (n=9)	Nonrevised Arthroplasty (n=27)	
	Mean (95% CI), Range	Mean (95% CI), Range	*P* Value[a]
Satisfaction	49.2 (35.7-62.6), 25-60	90 (84.6-95.4), 50-100	**<.001**
Pain	18.3 (0-44.4), 0-50	17.0 (9.1-24.9), 0-70	.918
VAS-FA			
Overall	77.4 (47.4-100), 22-100	86.7 (81.1-92.3), 47-100	.520
Pain	76.9 (39.3-100), 7.5-100	86.6 (79.4-93.8), 40-100	.634
Function	77.3 (45.7-100), 18.2-100	87.0 (81.2-92.7), 40.9-100	.576
Other	77.8 (55.7-100), 40-100	86.2 (79.8-92.6), 38-100	.217

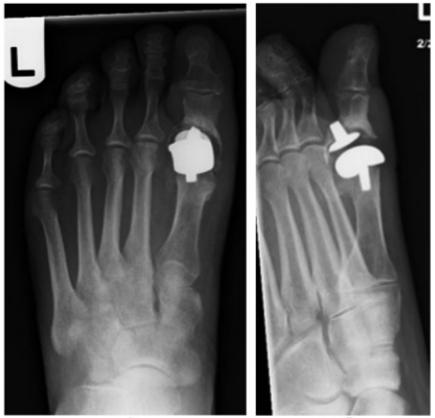


Table 4. Successful (Nonrevised) Arthrodesis vs Successful (Nonrevised) Arthroplasty.

	Nonrevised Arthrodesis (n=29)	Nonrevised Arthroplasty (n=27)	
	Mean (95% CI), Range	Mean (95% CI, Range)	*P* Value[a]
Satisfaction	96.7 (93.2-100), 60-100	90 (84.6-95.4), 50-100	**.016**
Pain	5.52 (1.4-9.7), 0-40	17.0 (9.1-24.9), 0-70	**.020**

Is total replacement of the first MTP-joint for arthrosis an option? An overview

Kofoed et al. in 2011 in Fuß & Sprunggelenk

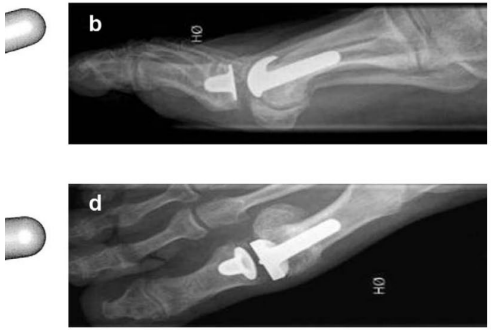
5

- Non-cemented TiCaP, three-component
- Allows for normal mobility
- Long intramedullary stem
- Middle crest to create the
  of the lower first met
- Between is a poly meniscu
  phalangeal implant
- Extension/flexion betwee
  and metatarsal
- Rotation between meniscu
  phalangeal implant

Results

We have used this prosthesis for more than 10 years. At present about 130 cases have been treated. A prospective review of the series is currently being undertaken. Currently, we know that there has been no aseptic loosening of the prosthesis, that it gives excellent pain relief and sufficient mobility for normal daily activities. We do not recommend running and jumping (for any prosthesis for that matter), but all daily life activities can otherwise be performed.

In conclusion, the Roto-Glide prosthesis has given hope for the future use of total MTP-1 prosthesis.



omponent non-cemented device with a mobile bearing. Figure 7a

Comparison of Total Joint Replacement With Arthrodesis of the First Metatarsophalangeal Joint

Richter et al. in 2022 in Foot & Ankle Int

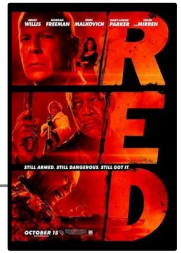


Table 1. Clinical Study Results: Roto-Glide vs Arthrodesis Preoperatively and at Longest Available Follow-Up.

	Roto-Glide (n = 70)	Arthrodesis (n = 72)	*P* Value
Preoperatively			
Age, y, mean (range)	54 (19-79)	61 (19-85)	<.001[a]
Male, n (%)	33 (47)	32 (44)	.75[b]
Height, cm, mean (range)	171 (153-190)	169 (150-188)	.06[a]
Weight, kg, mean (range)	74 (49-107)	80 (53-110)	.45[a]
IMA, mean (range)	8.4 (7-10)	8.2 (1-11)	.54[a]
HVA, mean (range)	11.6 (5-19)	12.8 (1-20)	.06[a]
HR, mean (range)	3.4 (2-4)	3.1 (2-4)	.26[a]
DF, degrees, mean (range)	19.4 (0-60)	30.9 (0-50)	.003[a]
PF, degrees, mean (range)	7.6 (0-30)	8.4 (0-30)	.71[a]
Force[c], %, mean	7.9/14.6	8.5/15.3	.82[d]
Follow-up (longest available)			
Wound healing delay, n (%)	4 (6)	5 (7)	.67[d]
Revisions, n in n patients (%)	5 in 5 (7)	12 in 8 (11)	.05[d]
FU time, mo, mean, range	47.3 (24-99)	37.2 (24-95)	<.001[a]
DF, degrees, mean (range)	36.1 (0-60)	–	
PF, degrees, mean (range)	14.0 (0-30)	–	
Force[c], % (mean)	15.8/5.8	12.3/10.8	.05[d]

Table 2. PROMs for Roto-Glide vs Arthrodesis.

	Roto-Glide	Arthrodesis	*t* Test *P* value
VASFA			
Preoperative	50.6±16.1	45.6±18.6	.09
3-mo FU	64.7±20.4	64.6±23.9	.97
12-mo FU	65.9±20.8	64.1±22.0	.62
24-mo FU	71.9±17.4	62.9±22.5	.008
36-mo FU[a]	72.8±17.3	60.8±23.0	.001
Longest FU	72.6±14.5	63.6±22.5	.006
EFAS score[a]			
Preoperative	10.7±5.5	10.6±4.4	.90
3-mo FU	14.2±5.3	13.4±3.7	.34
12-mo FU	15.6±2.9	14.2±3.8	.03
24-mo FU	15.7±3.8	13.9±4.2	.009
36-mo FU	16.0±3.8	13.9±4.1	.003
Longest FU	16.1±4.4	14.1±4.0	.007

Abbreviations: EFAS Score, European Foot and Ankle Society Score; FU, follow-up; PROMs, patient-reported outcome measures; VASFA, visual analog scale foot and ankle.
[a]Not available in all patients.

Table 3. PROMs: Preoperative vs Follow-ups (Paired *t* Test).

	VASFA		EFAS Score[a]	
	RG	A	RG	A
Preoperative vs 3-mo FU	<.001	<.001	<.001	.001
Preoperative vs 12-mo FU	<.001	<.001	<.001	<.001
Preoperative vs 24-mo FU	<.001	<.001	<.001	<.001
Preoperative vs 36-mo FU[a]	<.001	<.001	<.001	.001
Preoperative vs last FU	<.001	<.001	<.001	<.001
12-mo FU vs 24-mo FU	.004	.16	.95	.61
12-mo FU vs 36-mo FU[a]	.001	.009	.61	.08
12-mo FU vs last FU	.006	.14	.46	.66
24-mo FU vs 36-mo FU[a]	.07	.18	.20	.87
24-mo FU vs last FU	.63	.38	.57	.26

- Force %
  - 1st Met head/sesamoids higher and great toe lower in RG than A an
- Final F/U
  - No loosening, sublux, cyst for RG
  - No pseudo for A

The Rotoglide™ total replacement of the first metatarso-phalangeal joint. A prospective series with 7–15 years clinico-radiological follow-up with survival analysis

Kofoed et al. in 2017 in Foot & Ankle Surgery

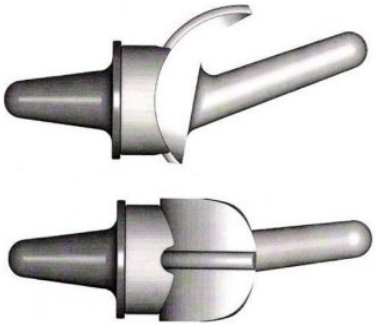
1

Table 2
Radiographic results.

Subluxation components	13	
Subluxation sesamoid bones	6	
Metarso-sesamoid arthrosis	22	
Dorsiflexion MTP-1	38° (9–74)	
Hallux angle	11° (1–34)	
Intermetatarsal angle	8° (3–21)	
Radiolucency > 2 mm anywhere	1	
Prosthetic loosening	0	
Periprosthetic cysts metatarsus	2	0.51 cm^2 (0.41–0.61)
Periprosthetic cysts phalangeal	13	0.1 cm^2 (0.05–1.1)
Heel raise		11.3 cm (6.3–14.8)

Table 3
Multiple variance analysis (ANOVA test).

	Response AOFAS p-Value	Response VAS p-Value
Radiol. Sublux. Implant	0.99	0.48
Radiol. Sublux. Sesamoids	0.90	0.93
Radiol. Sesamoid junction	0.0045*	0.055
Radiol. Dorsiflex. MTP-1	0.12	0.72



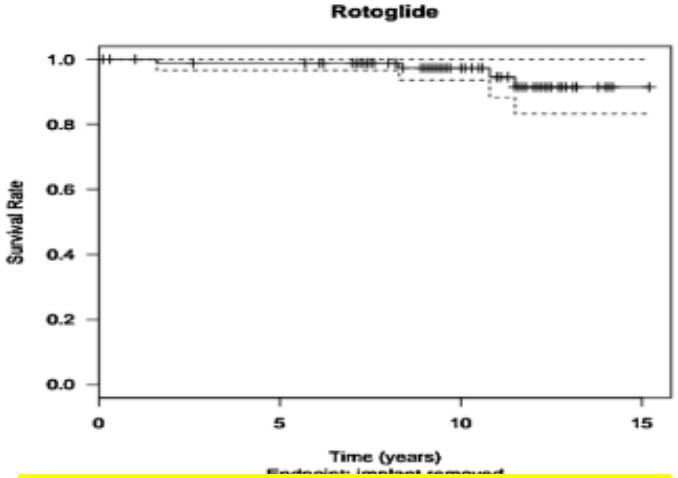
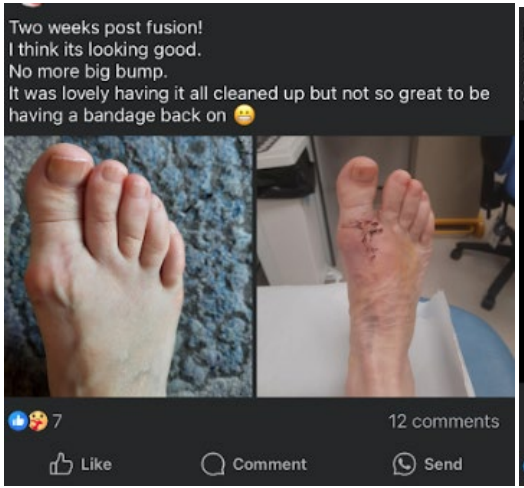


Fig. 5. Kaplan Meyer survival curve. 15 years follow-up. **91.5% (83–100)**.

- 90 Implants
- Mean follow-up 11.5 years (7-15)
- 87.5% Recommend to others
- 84% Would have again
- **4.4% Implants extracted**

Facebook Groups

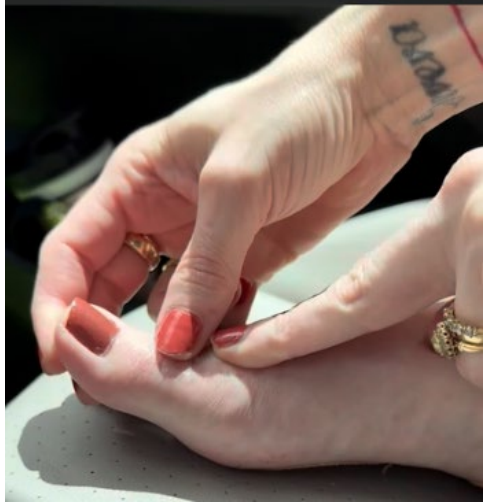
Six month post fusion update. Just did a 10 day walking tour of Italy with zero pain. Very happy I went through with the fusion and eliminated all pain. My gait pattern is almost normal with no limp. I'm able to do everything that I want to do.



Facebook Groups

(Sorry for the blasting AC noise, I'm in the pits of Florida running errands today.)

My hemi arthroplasty was 5 weeks ago, and this is the most movement I can get, only passively, I can barely move the toe at all actively. I know I am still swollen as well, but my worry is that I have read most people got out in PT 2.5-3 weeks post op, and my doctor has still not sent me. I did have a more rough recovery as I have a connective tissue disorder and am slower to heal, but I am getting very nervous about scar tissue build up. Am I worrying too much? Should I push to start PT asap?? Or is this normal for 5 weeks (especially the very limited movement actively)? Thanks in advance everyone!



RTS implant surgery update: I'm now 6 weeks post op. I've been released from just about all limitations. In my normal shoes, wiggling toes and having no pain. X-rays look amazing. I do have slight swelling after lots of activity, which is normal for any post surgical procedure or running around in this heat. I also have a little tenderness at the surgical site but not painful. I'm starting PT shortly to help with my gait and stuff. I can definitely feel how my natural gait changed to compensate for the HR. I'm super happy! Especially because I didn't have to buy any different shoes.

No pics to upload. My scars take years to fade so nothing really to show.

Like Comment Send

1h Like Reply 2

[redacted]

I had silastic implant over 30 years ago in right foot and left about 19 years ago. Both very successful. My reasoning was still being able to get in ski boots. Coming up to 70 still skiing but now have ball of foot pain and had 2 other toes fused. Wish I hadn't had fusions.

1h Like Reply 1

[redacted] · Follow

[redacted] silastic implant is 30 years old?

36m Like Reply

I had joint replacement surgery on big toe left foot, 3 weeks ago. All going well, not much swelling now, and pain is gradually easing.
Stitches were out on Tuesday this week and I'm walking without crutches now and only elevate leg if foot hurts.

I have a pre booked horse riding holiday booked for 6th September. What's the chances of me getting a riding boot on and riding by then. I don't need to post to the trot.

Any other horse riders out there can help or give any advice please?

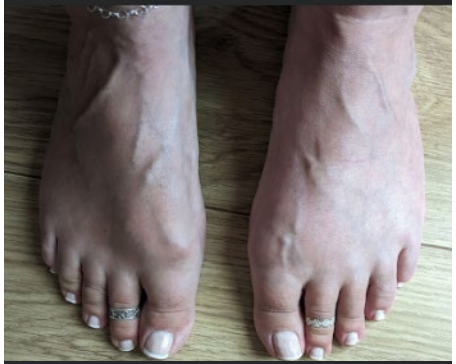
Facebook Groups

I have a question to those of you that has had the joint replacement or implant rather than fusion surgery. What was the state of your toe joint before the surgery? Where you able to bend your toe?

I saw a consultant last summer that said I was probably too late for cheilectomy (I'm stage 3 on both feet but only right toe is painful) and could have a fusion when the pain got too much. He never mentioned any other surgical options.

The fusion really scares me, not being able to bend my toes, however in reality they are already very stiff and barely bend as it is.

I've heard of this surgeon in London who does joint replacements. Would it be worth seeing him or might I as well go for the fusion as I am probably used to stiff joints already?



Most relevant

[redacted]
I heard they 'weren't there' yet w joint replacement. I am open to learning more.
3w Like Reply 1

[redacted]
Scott Maness they are in the USA. I would be leery getting one in the UK
3w Like Reply 2

Write a reply...

I have a high pain tolerance and did not know that it was this bad. Would you see a podiatrist or orthopedic surgeon? My hips hurt too.

[redacted]
Having the same issue
8h Like Reply 1

[redacted]
In Australia it's always an Ortho
8h Like Reply 1

[redacted]
O.S.
8h Like Reply 1

[redacted]
Podiatrist
9h Like Reply

[redacted]
Ortho who does foot and ankle surgery.
5h Like Reply

[redacted]
Ortho
6h Like Reply

[redacted]
Foot and ankle specialist
6h Like Reply

[redacted]
podiatrist to start
8h Like Reply

Most relevant

[redacted]
I have had both of my big toes fused, one four years ago and my second one was performed in June. I am basically pain-free and both of my surgeons did not recommend implants because they do not last long or else they don't work.
1h Like Reply 2

[redacted]
I had silastic implant over 30 years ago in right foot and left about 19 years ago. Both very successful. My reasoning was still being able to get in ski boots. Coming up to 70 still skiing but now have ball of foot pain and had 2 other toes fused. Wish I hadn't had fusions.
1h Like Reply 1

[redacted] · Follow
[redacted] your silastic implant is 30 years old?
36m Like Reply

Write a reply...

[redacted]
I had big to fusion in mid-December. Very happy with the results. I run, hike, bike, practice yoga. Had to say good bye to heels but it's worth it to live without pain. I'm 45 years old.
1h Like Reply 2

[redacted] · Follow
I'm 5 years into a silastic implant with no issues. I didn't want a fusion because I wanted to be able to bend that toe and do things like lunges and planks and yoga and barre.
32m Like Reply

[redacted]
Have the fusion, it's worth it!!!
37m Like Reply

[redacted]
Cartiva in right great toe 2019
Toe fusion left great toe 2022. Both doing great Podiatrist did both
41m Like Reply

[redacted]
2019 I had left one replaced with titanium. 2024 had the 2nd one done with silicone. Both have been great so far.
49m Like Reply

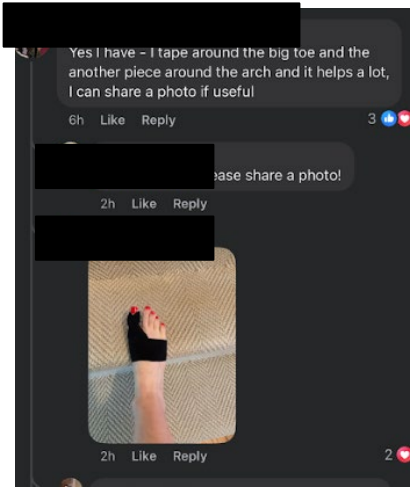
[redacted]
If you are young and active, an implant will fail. My surgeon refused to do it, and I'm so glad I listened. I fused at 34 (was terrified) and it was the best thing I've done. Ran my fastest half marathon a year post fusion.
50m Like Reply

[redacted]
I had fusion last December. Healed well and the best thing is I have no pain,

Facebook Groups

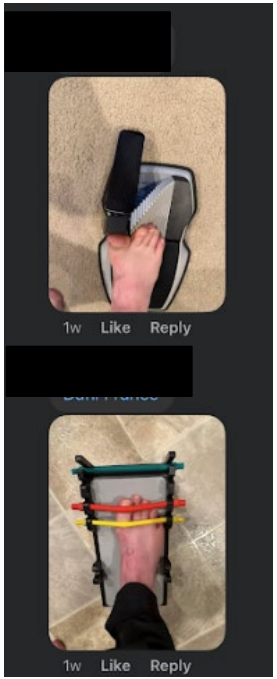
Has anyone left their arthritic big toe long enough that it fused by itself? I am hoping this happens to me..... Just curious if this is a possibility.

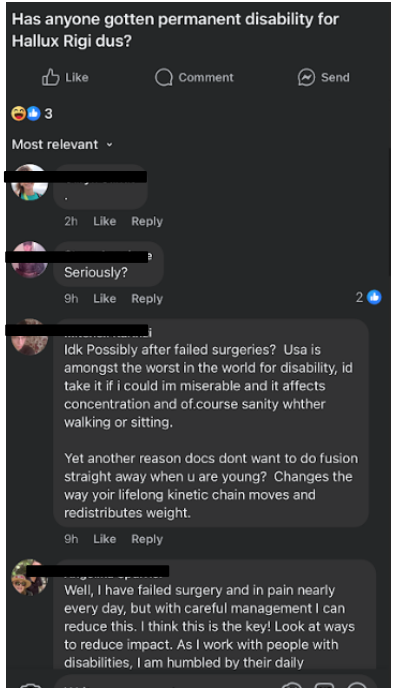
2 2 comments



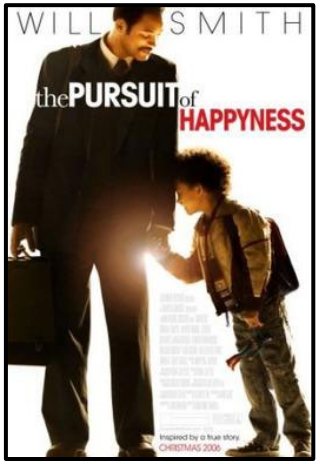
The group's "Slipper Recommendations" for 2025 are below. You can access a printable list in the files.

Please refer anyone asking about slippers/house shoes to this resource & thanks to all for your input!





In Conclusion



Thank you – Questions?