

BIOLOGICALLY ORIENTED PROSTHESES

**BIOPRO**

CLINICAL PUBLICATION SUMMARY

# MPJ Hemi Implant





## The BioPro® MPJ Hemi Implant is the only First MTP Joint Implant backed by 70+ years of clinical data.

Our low-profile, press-fit implants are designed to replace the articular surface of the proximal phalanx in a painful, arthritic metatarsophalangeal (MTP) joint. The procedure offers restoration of motion and pain relief, with a minimal bone resection technique.

<b>Publication</b>	<b>Implant Survivorship</b>	<b>Follow up</b>
A metallic hemiarthroplasty resurfacing prosthesis for the hallux metatarsophalangeal joint	267/279 (95.6%)	8 months to 33 years
Long-Term Results of Hemiarthroplasty Compared With Arthrodesis for Osteoarthritis of the First Metatarsophalangeal.	30/31 (96.7%)	7.7 years (62-136 months)
Short-Term Clinical Outcome of Hemiarthroplasty Versus Arthrodesis for End-Stage Hallux Rigidus. The Journal of Foot and Ankle Surgery	44/46 (95.6%)	3.2 years (12-94 months)
First Metatarsophalangeal Hemiarthroplasty for Grade III and IV Hallux Rigidus.	103/103 (100%)	6 months
Metallic hemiarthroplasty for the treatment of end-stage hallux rigidus.	82/97 (84.5%)	5.4 years (56-98 months)
First metatarsophalangeal hemiarthroplasty for hallux rigidus.	20/22 (90.9%)	2 years
A Retrospective Cohort Study of the BioPro Hemiarthroplasty Prosthesis. The Journal of Foot and Ankle Surgery	78/79 (98.7%)	2.9 years (19-54 months)
A Prospective Investigation of the Biopro Hemi-Arthroplasty for the First Metatarsophalangeal Joint	23/23 (100%)	12 months
Contemporary Approaches to Stage II and III Hallux Rigidus: The Role of Metallic Hemiarthroplasty of the Proximal Phalanx	28/28 (100%)	3.3 years (2-112 months)
BIOPRO Resurfacing Endoprosthesis Versus Periarticular Osteotomy for Hallux Rigidus: Short-Term Follow-Up and Analysis	9/9 (100%)	12 months
	<b>Total: 684/717 (95%)</b>	<b>6 months to 33 years</b>

## A metallic hemiarthroplasty resurfacing prosthesis for the hallux metatarsophalangeal joint

Charles O Townley, MD, Warren Taranow, DO

Foot & Ankle International, 1994

### Summary

279 joints that underwent hemiarthroplasty with the BioPro Hemi over a 40-year period were reviewed. Follow-up at 8 months to 33 years after surgery revealed good or excellent clinical results in 95%. The time to follow-up was in excess of 5 years in 101 (36%) of the procedures, beyond 10 years in 62 (22%), and longer than 20 years in 23 (8%). Only one revision was performed in patients over 10 years post-op and no revisions for patients over 20 years post-op.

### Key Point

- This long-term study provides radiographic and clinical evidence to support the use of the BioPro Hemi Implant for the treatment of hallux rigidus. The procedure is relatively simple and successful results are predictable.

## Long-Term Results of Hemiarthroplasty Compared with Arthrodesis for Osteoarthritis of the First Metatarsophalangeal Joint.

Stefan R. Beekhuizen, MD, Timothy Voskuijl, MD, Ron Onstenk, MD

The Journal of Foot & Ankle Surgery, 2018

### Summary

A total of 31 patients underwent hemiarthroplasty with the BioPro Hemi and 47 patients underwent arthrodesis with a mean follow-up of 8.3 years. Hemiarthroplasty with the BioPro Hemi reported higher AOFAS-HMI scores (89.7 vs 72.8), lower pain scores, higher patient satisfaction (97% vs 60%), faster return to activity (6.7 weeks vs 11.7 weeks), similar revision rates (3.2% vs 8.5%), and lower repeat surgery rates (9.6% vs 61.7%).

### Key Point

- Results have shown more favorable postoperative outcomes for hemiarthroplasty compared with arthrodesis as operative treatment of osteoarthritis of the first metatarsophalangeal joint after a mean follow-up period of 8.3 years

## Short-Term Clinical Outcome of Hemiarthroplasty Versus Arthrodesis for End-Stage Hallux Rigidus

Karin H. Simons, MD, Pieter van der Woude, MD, Frank W.M. Faber, MD, PhD, Paulien M. van Kampen, PhD, Bregje J.W. Thomassen, PhD

The Journal of Foot and Ankle Surgery, 2015

### Summary

A total of 46 patients underwent hemiarthroplasty with the BioPro Hemi and 132 patients underwent arthrodesis with a mean follow-up of 38 months. The study reported higher patient satisfaction rates (81.6% vs 64%) for the BioPro Hemi. A total of two hemiarthroplasties (4.1%) required conversion to arthrodesis. The arthrodesis group reported five (3.7%) non-unions and (11.1%) required a second surgery due to pain or infection.

### Key Point

- Hemiarthroplasty can be considered an alternative to arthrodesis, with the advantage of maintaining first MTPJ motion.

## First Metatarsophalangeal Hemiarthroplasty for Grade III and IV Hallux Rigidus

Eric Giza, MD and Martin R. Sullivan, MD

Techniques in Foot & Ankle Surgery, 2005

### Summary

No cases of infection or loosening of 103 hemiarthroplasties were performed over a span of four years. The authors report that the BioPro Hemi is a reliable option and particularly beneficial when used in middle-aged females with grade III or IV hallux rigidus who wish to wear shoes of varying heel height.

### Key Point

- The BioPro First MTP hemiarthroplasty is a reliable alternative to fusion of the 1st MTP joint. It has a particular usefulness in the middle-aged female with grade III or IV hallux rigidus who does not desire a 1st MTP arthrodesis and would like to continue to wear shoes of varying heel height.

## Metallic hemiarthroplasty for the treatment of end-stage hallux rigidus.

Clement ND, MacDonald D et. al

The Bone & Joint Journal, 2016

### Summary

A total of 97 procedures were performed with the BioPro Hemi. A total of 15 implants required revision. One revision was for deep infection, two for osteolysis, and twelve for persistent pain. The BioPro Hemi offers good short- to mid-term functional outcomes with 90% of surviving joints having a satisfactory range of motion

### Key Point

- BioPro hemiarthroplasty offers good short to mid-term functional outcome and is a cost effective intervention.

## A Retrospective Cohort Study of the BioPro Hemiarthroplasty Prosthesis

Christine C. Salonga, DPM, David C. Novicki, DPM, FACFAS, Martin M. Pressman, DPM, FACFAS, Scot Malay, DPM, MSCE, FACFAS

The Journal of Foot and Ankle Surgery, 2010

### Summary

A retrospective study of 76 patients who underwent hemiarthroplasty with the BioPro Hemi with a mean follow-up of 2.91 years showed an increase of 26° range of motion and concluded that the BioPro Hemi is a useful option for the treatment of first metatarsophalangeal joint degeneration.

### Key Point

- Based on these results, use of the BioPro hemi-implant is a useful option for the treatment of first metatarsophalangeal joint degeneration.

## A Prospective Investigation of the BioPro Hemi-Arthroplasty for the First Metatarsophalangeal Joint

Charles G. Kissel, DPM, FACFAS, Zeeshan S. Husain, DPM ACFAS, Paul H. Wooley, PhD, Michael Kruger, MS, Mark A. Schumaker, DPM, Michael Sullivan, DPM, and Todd Snoeyink, DPM

The Journal of Foot and Ankle Surgery, 2008

### Summary

23 patients with metatarsal head cartilage degeneration (>71.8%) reported an ACFAS Universal Foot and Ankle Score increase of 41.2 to 80.4, with an increase of 46.9° (20.6 to 67.5) range of motion. These outcomes showed drastic improvements despite the amount of double-sided cartilage degeneration.

### Key Point

- The amount of metatarsal head cartilage degeneration does not necessarily indicate arthrodesis as the BioPro Hemi Implant still provides significant improvement.

## First metatarsophalangeal hemiarthroplasty for hallux rigidus

Eric Giza, MD, Martin Sullivan, MD, Dan Ocel, MD, Gregory Lundeen, MD, Matt Mitchell, MD, Lauren Frizzell, MD

International Orthopaedics, 2010

### Summary

20 patients that underwent hemiarthroplasty with the BioPro Hemi reported an increase of 15° range of motion and a reduction in VAS pain score from 5 to 2.5. Painless ambulation occurred after six weeks with max improvement by six months. Authors recommend that the use of the MTP hemiarthroplasty is limited to patients with hallux rigidus and that it be avoided in those with hallux–sesamoid arthritis, hallux valgus, and inflammatory arthritis.

### Key Point

- First MTP hemiarthroplasty for severe hallux rigidus can be considered an alternative to fusion in properly selected patients who wish to maintain a functional range of motion.

## Contemporary Approaches to Stage II and III Hallux Rigidus: The Role of Metallic Hemiarthroplasty of the Proximal Phalanx

Warren S. Taranow, DO, Michael J. Moutsatson, DO, Jonathan M. Cooper, DO

Foot and Ankle Clinics, 2005

### Summary

28 patients that underwent hemiarthroplasty with the BioPro Hemi were evaluated under the Foot Function Index (FFI). Mean pain scores improved (76.14 to 18.80), mean disability scores improved (75.43 to 18.40), and mean activity scores improved (29.33 to 8.09). A total of 26 patients (92.9%) would recommend the procedure.

### Key Point

- This clinical series demonstrates outcomes compared with other clinical series that studied arthrodesis, with the advantage of retained motion, shorter convalescence, and less restrictions of shoe wear. Superior results were noted in our clinical series when compared with published reports that studied cheilectomy for advanced hallux rigidus.

## BIOPRO Resurfacing Endoprosthesis Versus Periarticular Osteotomy for Hallux Rigidus: Short-Term Follow-Up and Analysis

Thomas S. Roukis, DPM, AACFAS, and Charles O. Townley, MD

The Journal of Foot and Ankle Surgery, 2003

### Summary

7 patients (9 procedures) were reviewed in a prospective hallux rigidus study at one year postoperative. The mean hallux Metatarsophalangeal-Interphalangeal Score increased 26.7 points (51.1 to 77.8). Range of motion was increased by 7 degrees.

### Key Point

- Within the current study, regardless of whether a periarticular osteotomy or resurfacing endoprosthesis procedure was performed, there was a significant improvement in subjective scores and a high percentage of patient satisfaction with surgical intervention









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