

BIOLOGICALLY ORIENTED PROSTHESES

BIOPRO

Case Series

Treating Carpometacarpal (CMC) Arthritis with the BioPro® Modular Thumb Implant



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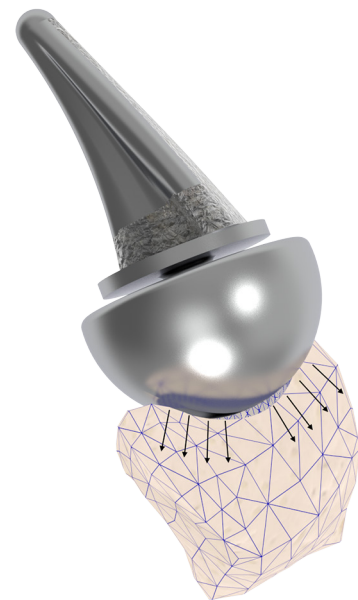
Background

Thumb carpometacarpal osteoarthritis (CMC-1 OA) is a prevalent condition, affecting 11% of men and 33% women in their 50s and 60s. In the U.S., 93% of surgeons reportedly use trapeziectomy with ligament reconstruction and tendon interposition (LRTI) as the primary treatment approach¹. Conversely, the majority of European surgeons prefer joint replacement surgery. Increasingly, U.S. patients are opting for joint replacement, which can offer quicker recovery and better cosmetic outcomes without limiting future treatment options.

Device Description

The BioPro® Modular Thumb Implant is a two-piece device designed to address carpometacarpal (CMC) joint arthritis. It consists of a head and a press-fit, plasma-sprayed stem. This modular design allows the head to be sized independently of the stem, matching the patient's anatomy.

The implant's modularity and ulnar stem alignment have contributed to promising advancements in CMC arthroplasty. It is supported by two decades of combined clinical experience and research, with published results showing a 94% survivorship rate at 6 years.¹ This represents an improvement over past implants, which faced issues like dislocation, loosening, and subluxation.



Methods

This case series reports on six patients treated by Dr. Diego Miranda from March 2024 to July 2024. The cohort consisted of three males and three females, all with Eaton-Littler Class II or III conditions. A minimum 6-month follow-up was required.

Patient data was collected using the Circles by Regenmed real-world data platform. Scores were recorded preoperatively, and at 6 weeks, 3 months, and 6 months, using the QuickDASH Outcome Measure and Visual Analogue Scale (VAS) to track function and pain. Patients will continue to be monitored for implant durability and satisfaction.



Patient PBFZ



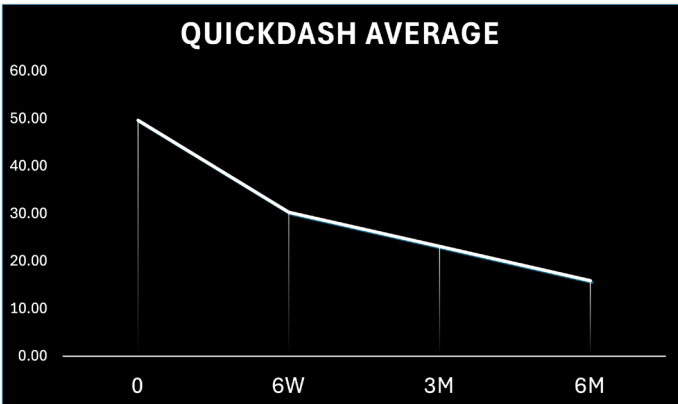
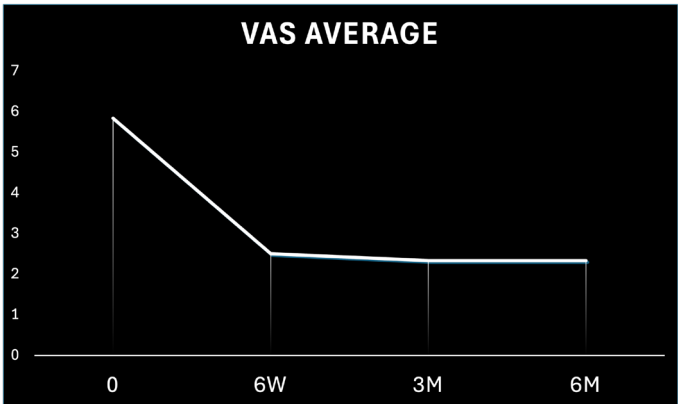
Patient PBQS



Patient PBYT

Results

The reported outcomes for the BioPro Modular Thumb Implant procedure show promising results. At 6 months post-op, the average VAS pain score improved from 5.8 to 2.3. Quick DASH scores improved from 49.6 to 15.9, and all three strength measurements (key pinch, tip, and grip) showed average improvements. No adverse effects were reported from the surgery.



Patient Id	Gender	Treatment Date	VAS OD	QuickDASH OD	VAS 6W	QuickDASH 6W	VAS 3M	QuickDASH 3M	VAS 6M	QuickDASH 6M
PBFZ	Female	2024-04-19	7	68.18	6	54.55	4	20.45	4	13.64
PBQS	Female	2024-05-10	6	38.64	2	45.45	3	31.82	2	11.36
PBYS	Male	2024-05-17	7	54.55	2	20.45	2	20.45	4	29.55
PBYT	Male	2024-07-12	5	61.36	1	15.91	2	13.64	2	15.91
PBQR	Male	2024-05-03	4	40.91	3	18.18	3	31.82	1	13.64
PBJM	Female	2024-03-19	6	34.09	1	27.27	0	20.45	1	11.36
AVERAGES			5.83	49.62	2.50	30.30	2.33	23.11	2.33	15.91

Discussion

As patient expectations continue to rise, we must advance our treatment methods. A registry-based analysis reported an average QuickDASH score of 26 at one year post-op for trapeziectomy with or without ligament reconstruction (LRTI).² In contrast, patients treated with the BioPro Modular Thumb Implant had an average QuickDASH score of 15.91 at 6 months, suggesting quicker and better patient-reported outcomes.

While continued follow-up is needed, the implant's 20-year history and clinical data indicate it may be a viable alternative to traditional trapeziectomy procedures.

References

1.

Yuan F, Aliu O, Chung KC, Mahmoudi E. Evidence-Based Practice in the Surgical Treatment of Thumb Carpometacarpal Joint Arthritis. J Hand Surg Am. 2017 Feb;42(2):104-112.e1. doi: 10.1016/j.jhssa.2016.11.029. PMID: 28160900; PMCID: PMC5302845.

2.

Wilcke, M., Roginski, M., Åström, M. et al. A registry based analysis of the patient reported outcome after surgery for trapeziometacarpal joint osteoarthritis. BMC Musculoskelet Disord 21, 63 (2020). <https://doi.org/10.1186/s12891-020-3045-7>

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