

BIOLOGICALLY ORIENTED PROSTHESES

BIOPRO

Your Journey to Recovery

A Patient Guide to Thumb CMC Joint Replacement with the BioPro Modular Thumb Implant.



A Personal Welcome from BioPro

Congratulations on taking this important step toward reclaiming the life you love. Whether you struggled to open a jar, grip a pen, turn a doorknob, or simply hold someone's hand without pain — you made a decision to change that. And we are honored to be part of your journey.

The BioPro Modular Thumb Implant was designed with a simple but powerful belief: your thumb joint deserves to be replaced, not removed. Since 1987, BioPro has been engineering implants that work in harmony with the body and our Modular Thumb Implant, developed in collaboration with leading hand surgeons, reflects decades of that commitment to precision, quality, and patient outcomes.

This guide was created to walk you through what to expect as your body heals and your thumb regains strength and function. You will learn about your post-operative care stages, what milestones to look for, how to work with your hand therapist, and what real patients just like you experienced on their road to recovery.

Recovery is a journey, not a race. Every patient heals at their own pace; and your care team, your surgeon, hand therapist, and the BioPro support network are here to make sure you reach the finish line.

Evidence

A first published clinical study reported a 94% success rate for the BioPro Modular Thumb Implant.*

The implant maintains your thumb's natural length and cosmetic appearance.*

Proven to preserve and improve your pinch and grip strength.*

If ever needed, it may be revised with a traditional procedure.*

* Pritchett JW, Habryl LS. Clin Orthop Relat Res. 2012.

Understanding Your BioPro Modular Thumb Implant

Thumb arthritis — also known as carpometacarpal (CMC) joint arthritis — is one of the most common forms of arthritis, affecting up to 15% of adults over 30 and up to 33% of postmenopausal women. When arthritis damages the smooth cartilage at the base of the thumb, everyday actions become painful or impossible.

Traditional surgical treatment removes the trapezium, the small bone at the base of the thumb, eliminating the joint entirely. While effective for pain relief, this approach may shorten the thumb, reduce grip and pinch strength, and may involve a lengthy recovery.

The BioPro Modular Thumb Implant takes a different approach. Rather than removing the joint, it replaces it — preserving the thumb's natural structure while eliminating the bone-on-bone pain of arthritis.

How the Implant Works

The BioPro Modular Thumb Implant is a two-piece design:

- A stem component anchors into the first metacarpal bone of the thumb.
- A head component replaces the joint surface, creating a new, smooth articulation in the trapezium.
- Together, the two pieces restore natural movement and load distribution in the thumb.

With 48 different implant configurations — four stem sizes and twelve head sizes — your surgeon can select the combination that most closely matches your unique anatomy. This level of personalization is key to achieving the best functional outcome.



BioPro Implant = Preserves the Joint



Trapeziectomy = Removes the Joint

Implant Materials

Standard Implant: Cobalt Chrome — a highly biocompatible and durable metal with a long history of safe use in joint replacements.

Titanium Option: Available for patients with a nickel sensitivity. Ask your surgeon about the MELISA blood test to assess metal sensitivities before surgery.

Always discuss material options with your surgeon to determine the best choice for your individual needs.

Understanding Your Recovery

Every patient who undergoes the BioPro Modular Thumb procedure follows the same three stages of recovery: immobilization, mobilization, and strengthening. However, the speed at which you move through these stages is unique to you.

Your surgeon and hand therapist will guide you based on factors such as your bone quality, the stability of your implant, your overall health, and your commitment to your home exercise program. The following factors may delay the pace of progression:

- Revision surgery (having had a previous procedure on the same thumb)
- Surgical complications, such as a fracture during surgery
- Later state arthritis
- Diabetes
- Smoking

The best outcomes come from close communication between you, your surgeon, and your certified hand therapist. Be open and honest about your pain levels, your progress, and any concerns — there are no wrong questions during recovery.

Your Recovery Path: What to Expect

Based on patient outcomes, we know that people experience a range of recovery timelines. Understanding where you may fall on this spectrum helps you set realistic expectations and stay motivated.

Patients	Recovery Type	Timeline	What This Means For You
20%	Accelerated Recovery	3–6 Weeks	Excellent bone quality, strong implant stability confirmed by your surgeon, and consistent adherence to home exercises. Therapy may begin in Stage 1 as early as Day 7.
60%	Standard Recovery	6–12 Weeks	The most common outcome. Steady progression through all three stages with full activity resumption by 8–12 weeks and continued strength gains over 6 months.
20%	Prolonged Recovery	3–12 Months	May occur with complications, diabetes, smoking, lower bone density or even unpredictable bone remodeling. Your care team will adjust the protocol and continue to support your progress.
Rare	Extended Recovery	Up to 16 Months	Occurs in rare cases involving unpredictable bone remodeling, complications or medical factors. Close collaboration with your surgeon remains essential. Importantly, strength continues to improve for up to two years post-surgery.

Important Reminder

Regardless of which recovery path applies to you, strength continues to improve for up to two years from your surgery date. Progress does not stop when formal therapy ends as the body continues to adapt and strengthen long after discharge.

Your Three Stages of Recovery

Your recovery protocol was developed by a Certified Hand Therapist in collaboration with BioPro surgeons. It is designed to give the implant time to achieve biological fixation (bonding with your bone) while gradually restoring motion, strength, and function. Depending on your surgery, your surgeon may modify this protocol to best fit your unique needs.

STAGE 1: IMMOBILIZATION Weeks 1–3 Post-Operative

- **Days 3–5:** Your hand therapist will remove your surgical dressings and fit you for a custom forearm-based thumb spica splint. This splint positions your wrist in neutral and your thumb in a protected abducted position.
- **Days 7–21:** In the therapy clinic, your therapist will assist with gentle range of motion to your wrist and the uninvolved thumb joints (MP and IP) — while keeping the CMC joint fully protected. You will not move the implant site during this stage.
- Home care: Elevate your arm and hand to reduce swelling. Perform active finger and IP joint exercises within the splint — 10 to 15 repetitions, 4 to 6 times daily.
- Scar mobilization and desensitization techniques are begun in clinic to minimize adhesions and hypersensitivity.
- **IMPORTANT:** Passive range of motion, pinching, thumb adduction, and any shearing force at the CMC joint are normally avoided during this entire stage. Remember to slow down and allow your body to heal properly, even if you are experiencing no pain or motion limitations

STAGE 2: MOBILIZATION Weeks 4–7 Post-Operative

- **Weeks 4–5:** Your surgeon will assess implant stability. If biological fixation is confirmed, supervised active-assisted thumb movement begins out of the splint — palmar and radial abduction, 10 to 15 repetitions per direction.
- With a reliable home exercise program, these exercises may be continued at home 4 to 6 times per day. The splint is worn between sessions and at night.
- **Weeks 6–7:** With surgeon approval, your forearm-based splint is modified to a shorter hand-based splint. Opposition (touching thumb to each fingertip) begins out of the splint. Light grasp activities are permitted within the splint.
- Resistive gripping and pinching remain off-limits during this stage.
- The lateral pinch position — thumb adduction with flexion — is still avoided.

STAGE 3: STRENGTHENING Weeks 8–12 Post-Operative

- **Weeks 8–9:** Light strengthening exercises begin for the wrist, forearm, and thumb. Rubber-band resistance targets the abductor and extensor muscles of the thumb. Light therapy putty exercises for grasp and opposition are introduced.
- Light resistive 3-point pinching and light functional self-care activities are initiated out of the splint.
- **Weeks 10–12:** Grasp and pinch strengthening progresses with therapy putty within pain-free tolerance.
- Splint wear is gradually reduced as strength increases — worn only for protection during heavy activities.
- By end of Month 3, the splint is typically discontinued. Progressive, unrestricted use of the thumb usually resumes 4 to 6 months post-surgery.
- Strength continues to improve for up to 2 years from the date of surgery.

What's Happening Inside Your Thumb

One of the most common questions patients have is: “Why do I need to wait so long before using my thumb?” The answer lies in a remarkable biological process happening beneath the surface — one that is worth understanding, because it explains every restriction and every milestone in your recovery.

1. Stem Ingrowth	2. Trapezial Remodeling
The stem of the BioPro implant is press-fit into the canal of your first metacarpal bone — the long bone of the thumb. The implant's surface is designed to encourage your bone cells to grow directly into and around the stem, creating a secure, biological bond. This process — called osseointegration or bone ingrowth — typically takes approximately six weeks to achieve meaningful fixation. During this window, the implant must be protected from heavy loading and shear forces. Early high-activity loading can disrupt the ingrowth process, delaying or preventing secure fixation. This is why immobilization in the early weeks is non-negotiable — it gives the bone the time it needs to anchor the stem permanently. Once ingrowth is established, the implant becomes a stable, load-bearing part of your thumb.	The head of the implant — the rounded ball component — sits within the trapezium bone and articulates as a new joint surface. Over time, the trapezium responds to the mechanical forces of the implant by reshaping itself. This is called bone remodeling, and it is a completely normal biological response. As the trapezium remodels around the implant head, it effectively creates a customized natural socket. This remodeling process can take anywhere from several months to over a year, and in 10–20% of patients, it causes a period of discomfort known as “remodeling pain.” Importantly, even dramatic bone remodeling on X-ray does not necessarily mean a bad outcome. Patients who experience significant remodeling often achieve full pain relief and excellent satisfaction once remodeling is complete.

The Key Insight

Both processes — stem ingrowth and trapezial remodeling — require time and protection. Your splint, your exercise restrictions, and your therapy schedule are not arbitrary: they are precisely timed to support these biological events. Trust the process, and the biology will follow.

Why Remodeling Pain Is Not a Warning Sign

If you experience a period of increased discomfort at the base of your thumb — particularly between weeks 6 and 12, or even later — it may be related to trapezial remodeling. This can feel like a dull ache or pressure at the surgical site that seems inconsistent with your overall progress.

Remodeling pain is typically managed with anti-inflammatory medications (NSAIDs), temporary increases in splint wear, and activity modification. In most cases it resolves as the bone completes its remodeling cycle. Your surgeon will monitor this with periodic X-rays and guide your management accordingly.

Always Tell Your Surgeon

Not all pain during recovery is remodeling pain. Some discomfort may signal other conditions — see the next section for details. Never assume that pain is “normal” without checking with your care team.



During surgery and immediately post-operatively, the socket surface consists of exposed cancellous bone with intact cortical walls.



Over time, the cancellous bone undergoes sclerosis, forming a hardened surface that stabilizes the implant head.

Understanding Complications & Other Sources of Pain

The BioPro Modular Thumb Implant has a strong clinical track record, but like all surgical procedures, complications can occasionally occur. Understanding what these are, what causes them, and how they are managed will help you communicate clearly with your care team and avoid unnecessary concern if challenges arise.

Implant-Related Complications

Dislocation

What it is: The head of the implant moves out of its position within the trapezium socket.

Causes: Patient anatomy (shallow trapezial socket), early overuse or non-compliance with restrictions, or trauma to the thumb.

Signs: Sudden sharp pain, visible deformity, loss of normal thumb position, or significant instability.

Management: Your surgeon may revise the implant by upsizing the head component to a larger diameter or using an offset (taller) head to better fill and stabilize the socket. The modular design of the BioPro implant makes this type of revision straightforward.

Stem Migration or Failure to Ingrow

What it is: The stem shifts within the metacarpal canal or fails to achieve secure biological fixation.

Causes: An undersized stem, poor bone quality, early high loading, or trauma. Smoking and diabetes both impair the bone ingrowth process.

Signs: Persistent deep pain in the thumb, instability, or changes visible on X-ray.

Management: Extended immobilization may allow late ingrowth. If revision is required, your surgeon may place a larger-diameter stem, a longer stem (+4 mm option), or perform a full revision procedure. The modular system provides multiple revision options without requiring removal of all components.

Metal Sensitivity Reaction

What it is: An immune reaction to the small amount of nickel present in the standard cobalt chrome implant (~0.8% nickel).

Who is at risk: Approximately 15% of the population has a nickel sensitivity. Pre-surgical testing with the MELISA blood test can identify at-risk patients.

Management: If sensitivity is suspected post-operatively, clinical evaluation and MELISA testing can confirm it. Revision to the titanium implant option resolves metal-related reactions.

Other Conditions That Can Mimic CMC Pain

An important insight from experienced hand surgeons: not all pain felt at or near the base of the thumb comes from the implant or the CMC joint. Several other conditions can produce similar symptoms and may be present alongside — or independent of — your thumb arthritis. These are worth understanding, because identifying them early leads to faster, more effective treatment.

De Quervain's Tenosynovitis

Inflammation of the tendons that run along the thumb side of the wrist. Causes pain and swelling near the base of the thumb that can closely resemble CMC joint pain. Often aggravated by gripping or lifting. Diagnosed with the Finkelstein test; treated with a splint, anti-inflammatories, corticosteroid injection or surgically with a first compartment release.

Trigger Thumb

A narrowing of the tendon sheath causes the thumb to catch or lock when bending. Can produce pain at the base of the thumb. Often identified by clicking, catching, or the thumb locking in a bent position. Treated with splinting, corticosteroid injection, or a minor surgical release.

Carpal Tunnel Syndrome

Compression of the median nerve at the wrist can cause numbness, tingling, or weakness in the thumb and first two fingers. These symptoms may overlap with thumb arthritis complaints. Diagnosed with nerve conduction studies; treated with splinting, steroid injection, or carpal tunnel release surgery. It may be present at the same time as thumb CMC arthritis.

Adjacent Joint Arthritis (STT Joint)

Arthritis in the scaphotrapezotrapezoid (STT) joint — the joint immediately adjacent to the CMC joint — can produce overlapping symptoms. A diagnostic injection into the CMC joint that provides temporary relief confirms the CMC joint as the primary pain source, helping rule out adjacent joint disease. The BioPro implant is indicated only when CMC arthritis is the primary diagnosis.

What This Means For You

If you experience unexpected or persistent pain after surgery — especially pain that does not follow the expected remodeling pattern — mention it to your surgeon. It may not be related to your implant at all. Identifying and treating an accompanying condition is straightforward and can make a significant difference in your overall recovery experience.

Working With Your Hand Therapist

Your certified hand therapist is one of the most important members of your recovery team. Hand therapy is a specialized field that combines the expertise of occupational therapy and physical therapy to restore function to the hand, wrist, and arm.

Close communication between your hand therapist and your surgeon is essential to your recovery. Together, they will determine when you are ready to progress from one stage to the next — and customize the protocol if your healing requires a different pace.

What to Expect at Your Therapy Visits

- Splint fitting, monitoring, and adjustments to ensure proper alignment and protection of the CMC joint
- Supervised, hands-on range of motion exercises — especially in the early stages when precision matters most
- Scar massage and desensitization techniques to reduce stiffness and hypersensitivity at the surgical site
- Progressive strengthening exercises using therapy putty and resistance tools
- Guidance on home exercises with clear instructions on repetitions, frequency, and precautions
- Functional activity training to help you safely return to daily tasks

Tips for Getting the Most From Therapy

- Perform your home exercises exactly as prescribed — frequency and technique both matter.
- Bring your splint to every appointment so your therapist can check the fit.
- Keep a simple daily log of exercises and note any pain or changes.
- Be patient with early-stage restrictions — protecting the implant now ensures better function later.
- Ask questions at every visit — your therapist wants you to understand your own recovery.



Real People. Real Results.

The stories below come from patients who chose the BioPro Modular Thumb Implant to get back to the lives they love. Their experiences vary — some recovered quickly, some needed more time — but all share a common thread: a meaningful return to the activities that matter most.



**Dr. Duffner —
Orthopedic Surgeon**

Dr. Duffner was no ordinary patient. As an orthopedic surgeon himself, he understood exactly what each treatment option would mean for his hands and for his career. Painful arthritis in both thumbs had brought him to the brink of early retirement. He knew the traditional procedure (trapezium removal) would compromise the pinch and grip strength he relied on in the operating room. After consulting with Dr. Neil Jones, Dr. Duffner chose the BioPro Modular Thumb Implant. The result? He returned to performing surgery. His story is a powerful testament to what preserving the joint rather than removing it can mean for a patient's quality of life and professional function.



**Ruth M. —
A Patient Who Knows Both Sides**

Ruth's story offers a rare and valuable perspective. Twelve years ago, she underwent LRTI surgery (trapezium removal with tendon interposition) on her right hand — the most common traditional procedure for thumb arthritis. More recently, when arthritis affected her left hand, she chose a different path: the BioPro Modular Thumb Implant, performed by Dr. John Faillace in Galveston, TX.

Having experienced both surgeries firsthand, Ruth is uniquely qualified to compare them — and states "I wish I had known about the Joint Replacement and had it on my other hand to have the same kind of functionality as I have with my left hand [BioPro]".

Hear More Stories

These are just two of the many patients whose lives have been changed by the BioPro Modular Thumb Implant.

To watch video testimonials from more patients visit: www.bioproimplants.com/patient-stories

Frequently Asked Questions

How long will I be in a cast or splint?

In most cases, you will wear a forearm-based thumb spica splint for approximately six weeks while the implant achieves biological fixation with your bone. Patients with excellent bone quality may transition to a hand-based splint earlier. Your surgeon makes this determination at each follow-up visit.

When can I return to normal daily activities?

Most patients with a standard recovery resume unrestricted daily activities 8 to 12 weeks after surgery. Full, progressive use of the thumb including more demanding tasks typically occurs 4 to 6 months post-surgery. Strength continues to build for up to two years.

Will the implant affect future treatment options if needed?

No — one of the significant advantages of the BioPro Modular Thumb Implant is that, in the rare event the implant does not achieve the desired outcome, it may be revised with a traditional trapezium removal procedure. The same cannot be said in reverse: revision of a traditional procedure has been shown to lead to worse outcomes. This flexibility is an important consideration when choosing your treatment.

What is the success rate?

The first published clinical study of the BioPro Modular Thumb Implant reported a 94% success rate across 143 patients. You can access the full published study at www.bioproimplants.com.

Is the implant appropriate if I have arthritis in other thumb joints?

The BioPro Modular Thumb Implant is specifically designed to treat isolated CMC (basal thumb) joint arthritis. If you also have arthritis in adjacent joints — such as the trapezium-scaphoid joint — you may not be a candidate. Consult your surgeon for a complete evaluation.

Can I travel to have this procedure done?

Yes. The procedure is outpatient, meaning you go home the same day. Post-operative hand therapy can typically be performed locally after your initial recovery. You can search for surgeons at bioproimplants.com/find-a-thumb-surgeon

What should I watch for after surgery?

Normal post-operative symptoms include mild swelling, bruising, and soreness. Contact your surgeon's office promptly if you experience sudden increased pain, significant swelling, signs of infection (fever, redness, discharge), or any feeling of instability at the thumb joint.

This content is provided as an educational tool only and is not meant as medical advice in the usage of specific BioPro products. A healthcare professional must use their professional judgment in making any final determinations in product usage and technique. The product's Instructions for Use, should always be reviewed prior to surgery. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes. This information does not constitute medical, legal, or any other type of professional advice and should not be relied upon as such. It is not to be redistributed, duplicated, or disclosed without the express written consent of BioPro, Inc.



BioPro, Inc.
2929 Lapeer Road, Port Huron, MI 48060, USA
info@bioproimplants.com | 1-810-982-7777
www.bioproimplants.com

