

Knee embolization (GAE)

for knee osteoarthritis pain



A catheter-based option that may ease knee arthritis pain for some people who want to avoid or delay knee replacement, or who are not candidates for it.

What it is

In knee arthritis, the lining of the joint (synovium) can become inflamed, and the body may grow extra small blood vessels to it. This extra blood flow is linked with swelling and pain. GAE slows that blood flow. A very thin tube (catheter) is placed at the wrist or groin and guided to the small genicular arteries around the knee, where tiny particles are released. Nothing is placed in the knee joint, and there is no cut into the knee. GAE does not repair cartilage or reverse arthritis.

Why the pain can last

Knee osteoarthritis is more than worn cartilage. The joint lining (synovium) often becomes inflamed, a process called synovitis. Inflamed tissue sends signals that lead the body to grow new, small blood vessels (neovessels) into the lining and the tissue around the joint.

At a glance

- Outpatient, usually home the same day
- Light sedation and numbing
- Small opening at the wrist or groin
- About 1 to 2 hours
- No cut into the knee
- Results vary

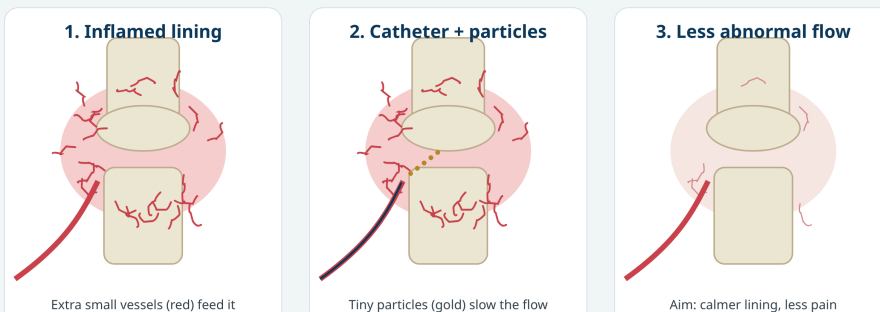
Who does what

Evaluation and workup:

GSMC providers at any of our 7 offices.

Procedure: Dr. Douglas Gibbens, interventional radiologist, at Manchester Surgery Center or Bey Lea Surgery Center.

How knee embolization works (simplified illustration)



Not to scale. Bones in beige, joint lining in pink, artery in red, catheter in navy.

✓ **Who it may help**

- ✓ Moderate to severe knee osteoarthritis pain for 3 months or more
- ✓ Pain that has not improved enough with exercise, physical therapy, weight management, medicines or knee injections
- ✓ People who want to avoid or delay knee replacement, or who are not candidates for it
- ✓ Pain that limits walking, stairs, sleep or daily tasks

✗ **May not be a good fit**

- ✗ Infection in or near the knee
- ✗ A knee replacement in the same knee (needs a separate evaluation)
- ✗ Knee pain mainly from another cause, such as a meniscus tear, the hip or the spine
- ✗ Serious kidney disease or a severe allergy to contrast dye
- ✗ A bleeding problem or severe artery disease in the leg
- ✗ Pregnancy

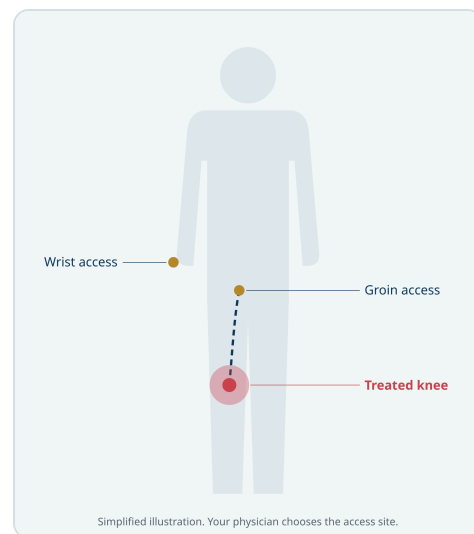
Your evaluation at any GSMC office

GSMC providers select patients and complete the evaluation and workup at whichever of our 7 offices is closest to you. Your visit usually includes:

- A review of your symptoms, how long they have lasted and what you have tried
- An exam of the knee and nearby areas that can refer pain
- A review of X-rays, and MRI or ultrasound if needed
- A review of medicines, blood thinners, allergies and kidney function (the procedure uses contrast dye)
- An honest talk about options, expected results, risks and coverage

Procedure day, step by step

- 1 Check in** at Manchester (Whiting) or Bey Lea (Toms River) Surgery Center with your driver.
- 2 Get ready.** A nurse places an IV. You get light sedation, and the wrist or groin is numbed.
- 3 Access and mapping.** A thin catheter is guided by live X-ray to the small arteries near the knee.
- 4 Embolization.** Tiny particles slow the abnormal blood flow. Usually 1 to 2 hours in all.
- 5 Rest and go home** the same day after monitoring.



Before your procedure

- Tell us about blood thinners, diabetes, kidney problems or a contrast dye allergy. Do not stop medicines on your own.
- Follow the eating instructions we give you, and arrange a driver.

Recovery timeline

Procedure day

Rest and monitoring after the procedure, then home with a driver. Keep the access site dry and covered; rest the arm or leg used.

Days 1-7

Light walking and daily tasks are usually fine. Avoid heavy lifting, hard exercise and soaking in a tub or pool with the access site. Mild soreness in the joint or a bruise at the wrist or groin is common.

Weeks 2-6

Most people are back to normal activities. Some notice pain starting to ease; for others, change is slower. Some people see a short-term skin color change over the joint that usually fades. Keep up with exercise or physical therapy.

About 3 months

A follow-up visit to review pain, function and goals. If embolization did not help enough, we talk through next options.

Risks, explained

- **Access site bruising or bleeding:** A bruise or small lump at the wrist or groin is common and usually fades. Larger bleeding is uncommon; pressure or a closure device is used to prevent it.
- **Skin color change over the joint:** Some people notice a temporary patchy discoloration or tenderness of the skin over the joint. It usually fades over days to weeks.
- **Particles reaching an unintended area:** Rarely, particles can reach small vessels that were not targeted, which may irritate or injure skin or other tissue. Careful imaging during the procedure is used to lower this risk.
- **Contrast dye reactions and kidneys:** The X-ray dye can cause an allergic reaction or strain the kidneys. We check your kidney function and allergies first.
- **Infection:** Uncommon. Keep the access site clean and call us for fever or redness.
- **No improvement:** Pain may not improve, or may return over time. Embolization does not rule out other treatments later.

When to call us

- Bleeding or a growing lump at the wrist or groin
- Fever over 101°F or chills
- A cold, pale, numb or very painful hand or foot
- Skin over the joint that becomes dark, blistered or open
- Pain much worse than before

Call 911 for chest pain or trouble breathing.

Questions? Call 732-202-3000.

Questions people ask

Is GAE surgery? No. It is a minimally invasive procedure done through a thin catheter at the wrist or groin. There is no cut into the knee.

Does it fix the knee? No. It does not repair cartilage. It aims to reduce the abnormal blood flow linked with inflammation and pain.

How soon might I feel a change? If it helps, the change often builds over several weeks. Results vary, and some people notice little or no change.

Will I stay overnight? Most people go home the same day after a period of rest and monitoring. Plan to have a driver.

How it compares with other options

Option	How it works	Good to know
Exercise and physical therapy	Strength, motion and walking tolerance	First-line for nearly everyone; continues after any procedure
Steroid injection	Short-term reduction of joint inflammation	Quick and in-office; relief is often temporary
Hyaluronic acid (gel) injection	Joint lubrication	Coverage and results vary
PRP injection	Uses your own platelets	Usually self-pay; evidence still developing
Genicular nerve radiofrequency ablation (RFA)	Heat calms the nerves that carry knee pain signals	Outpatient, needle-based; relief can last months; may be repeated
Genicular artery embolization (GAE)	Reduces abnormal blood flow linked with inflammation	Catheter-based; mixed research results; coverage varies
Knee replacement	Replaces the worn joint surfaces	A surgical option an orthopedic surgeon may discuss; we can coordinate a referral

What the research shows, in brief

What this means for you: GAE may help some people, but not everyone, and part of the improvement seen in studies may come from the placebo effect. Our team will talk this through with you honestly.

Insurance and cost

Coverage for embolization varies. Many insurers consider genicular artery embolization, and embolization for the shoulder or hip, investigational, so it may not be covered. Our team will check your plan and talk with you about costs before anything is scheduled.

Questions to ask at your visit

- Is my pain coming from the knee joint?
- What results are realistic for me?
- What are my specific risks?
- Is it covered by my plan? If not, what is the cost?

My notes

Call 732-202-3000

One number for all 7 offices: Whiting · Toms River · Brick · Barnegat · Manahawkin · Freehold · West Long Branch

Procedure sites: Manchester Surgery Center, 1100 Route 70 West, Whiting · Bey Lea Surgery Center, 54 Bey Lea Road, Bldg 2, Toms River

gsmedicalcenter.org/treatments/genicular-artery-embolization/

