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Knee Contracture After Surgery

What You Need to Know

What Is a Knee Contracture?

A knee contracture occurs when the knee becomes stuck in a fixed position — most commonly flexed (bent) — and cannot be fully straightened or fully bent. After knee surgery, contractures can develop if the joint is not moved regularly, if swelling and scar tissue accumulate, or if pain prevents adequate range-of-motion exercises in the early recovery period.

Contractures can occur after total knee replacement, ACL reconstruction, fracture repair, or any significant knee procedure. They are one of the most important complications to prevent — and to treat aggressively if they develop — because they directly affect your ability to walk, stand, and function normally.

Why Is Full Extension So Important?

Loss of full knee extension (the ability to straighten the knee completely) is the most functionally significant contracture. Even a 5° loss of extension significantly alters gait mechanics, increases energy expenditure walking, and places excessive stress on the quadriceps and opposite knee. Restoring full extension is the number-one priority in early post-surgical rehabilitation.

What Does a Contracture Feel Like?

- Inability to fully straighten or fully bend the knee
- A tight, pulling sensation at the front or back of the knee at end range
- Pain and resistance when trying to move the knee beyond a certain point
- Stiffness that does not improve with gentle movement or warmup
- A limping gait pattern due to inability to straighten the leg during walking
- Muscle tightness in the hamstrings, quadriceps, or calf

What Causes a Contracture After Surgery?

- Scar tissue (fibrosis) forming in and around the joint capsule
- Prolonged swelling preventing motion
- Inadequate early mobilization due to pain or fear of movement
- Arthrofibrosis — excessive scar tissue formation inside the joint (requires medical management)
- Immobilization in a splint or brace at a fixed angle for too long
- Pre-existing stiffness or range-of-motion limitations before surgery

How Is It Treated?

Treatment depends on severity and how long the contracture has been present. Options include:

- Intensive physical therapy — aggressive range-of-motion work, joint mobilization, and prolonged stretching
- Prolonged low-load stretching — sustained gentle force over time is more effective than brief aggressive stretching
- Dynamic splinting or serial casting — applies a constant gentle stretch over hours
- Manual therapy — hands-on techniques to mobilize the joint capsule and surrounding soft tissue
- Manipulation under anesthesia — in severe cases, the surgeon manually breaks up scar tissue while the patient is sedated
- Surgical revision — rarely needed, reserved for arthrofibrosis that does not respond to other treatment

When Should I Be Concerned?

- Lack of improvement in range of motion despite consistent PT for 4–6 weeks
- Significant loss of extension (more than 10°) — contact your surgeon
- Severe pain with any attempt at motion
- Marked increase in swelling or warmth — rule out infection

Prevention Is the Best Treatment

The most effective approach to knee contracture is preventing it from developing in the first place. Starting physical therapy immediately after surgery, working diligently on range of motion from day one, and controlling swelling aggressively are the most powerful tools. If you have already developed a contracture, do not be discouraged — with intensive, consistent PT, significant improvement is achievable.

Starting PT **early and consistent** daily effort are the most important factors in preventing or reversing a knee contracture.
