

TREATMENT

Manipulation Under Anesthesia After Total Knee Replacement

[Total knee replacement](#) is a surgery that can greatly reduce pain and improve function in people with end-stage [knee arthritis](#).

In most cases, you can expect to make steady progress with strength and knee range of motion following surgery. However, in a small number of patients, the knee may become stiff and painful after total knee replacement.

These symptoms normally get better with physical therapy and range-of-motion exercises, but if you are having difficulty improving your knee motion, your doctor may recommend a manipulation under anesthesia.

What Is a Manipulation Under Anesthesia

Manipulation under anesthesia (often called MUA) is a non-invasive procedure that helps you regain motion if your total knee replacement becomes stiff.

- Before the procedure, you will be given anesthesia (put to sleep) in the operating room. This ensures you will not feel any pain during the procedure.
- Your doctor will then gently bend and straighten your knee joint, applying gentle force to break up any scar tissue or adhesions causing the tightness.



To break up scar tissue, your doctor may perform a manipulation under anesthesia. The left image shows a stiff knee with restricted range of motion. The middle image is how the manipulation is performed. The right image demonstrates the knee range of motion following the manipulation.

No incision is necessary, though some surgeons will give an injection or a nerve block at the time of the MUA to help with pain control.

The procedure typically lasts only a few minutes, and you should be discharged home the same day (outpatient surgery).

Causes of Knee Stiffness After Total Knee Replacement

There are several potential causes of stiffness following a total knee replacement.

Adhesions (arthrofibrosis). The most common cause of stiffness, adhesions occur when scar binds together tissues in the knee that are not normally joined together. These adhesions, sometimes referred to as arthrofibrosis, make the knee feel stiff and painful.

Some people are more likely to develop arthrofibrosis than others. If you have a history of previous knee surgeries, including minimally invasive surgeries like [arthroscopy](#), you may be at an increased risk for developing adhesions.

Surgical complications. If there was a complication during your knee replacement, such as a fracture or infection, or if you have a wound healing issue after your total knee replacement, you may need a period of immobilization. Not moving the knee at all may cause you to develop knee stiffness.

Incorrect positioning or size of the implant. In very rare cases, your knee may remain stiff after surgery if the total knee replacement is not positioned or sized correctly during surgery. In these cases, a manipulation under anesthesia will not fix the stiffness, and you may need a revision total knee replacement.

It is important to discuss the cause of your stiffness with your doctor.

Timing of a Manipulation Under Anesthesia

The timing of your MUA is very important.

Studies have shown that performing an MUA within 3 months after surgery is the ideal time with the best outcomes. If your doctor is worried about stiffness, they may ask you to come in for a range of motion check just before the 3-month mark to determine if you will need an MUA.

You can still have an MUA after 3 months, but the results are not as reliable. Sometimes your doctor will recommend additional testing to determine the exact cause of your stiffness, or arthroscopic surgery to break up the scar tissue if the stiffness has been present for a long time.

Before a Manipulation Under Anesthesia

Before undergoing a MUA, it is important to talk to your doctor about what is causing your stiffness.

Decreased motion is usually caused by a build-up of scar tissue and adhesions inside the joint. However, sometimes your doctor may look for other causes of stiffness, especially if it has lasted for several months. The work-up may include tests to look for common causes of long-term stiffness:

- Bloodwork to evaluate for an infection in the knee joint
- A [CT scan](#) to look at the orientation (positioning) and size of the total knee replacement components

After a Manipulation Under Anesthesia

After the MUA, your knee will likely be sore and swollen for several days. However, it is very important to continue with your physical therapy exercises to prevent the stiffness from returning.

Even if your doctor was able to get your knee motion back completely with the manipulation, if you do not continue with your motion exercises, the adhesions can re-form and make your knee stiff again. Some doctors will prescribe a "continuous passive motion machine" (CPM) that helps move your knee for you, though not every doctor will prescribe this machine for every patient.

What Are the Risks of a Manipulation Under Anesthesia

Most patients experience increased knee mobility and reduced pain after the procedure, but there are some potential risks:

- Continued stiffness (this is the most common complication)
- Fracture (this is very rare)
- Persistent pain (this is very rare)

What If a Manipulation Under Anesthesia Does Not Improve Your Motion?

Most patients gain significant motion after their manipulation and are satisfied with their result.

However, sometimes an MUA does not fix your stiffness. This can happen:

- If the scar tissue has re-formed adhesions within your knee
- If your stiffness is caused by something else, such as infection or improper positioning of your total knee replacement components

As mentioned above, it is important to discuss the cause of your stiffness with your doctor to determine whether an additional work-up is needed.

How To Avoid a Manipulation Under Anesthesia

The best way to avoid an MUA is by performing your exercises as instructed by your doctor or physical therapist.

Performing your exercises consistently can prevent scar tissue from forming adhesions inside your knee. Once these adhesions do form, they are very difficult to break up on your own, and you may require a manipulation to regain your motion.

Long-Term Outcomes

Most patients who have had a manipulation under anesthesia experience a significant increase in range of motion and improved pain control. However, some residual pain and stiffness is common.

If your knee continues to be stiff and painful even after a manipulation, it is important to discuss your options with your doctor in order to achieve the best possible outcome.

Last Reviewed

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Contributed and/or Updated by

[Daniel Clayton Wilson, MD](#)

[Christopher Michael Melnic, MD, FAAOS](#)

[Neil P. Sheth, MD, FAAOS](#)

Peer-Reviewed by

[Thomas Ward Throckmorton, MD, FAAOS](#)

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