Patella Realignment

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Tibial Tuberosity Transfer with Lateral Release

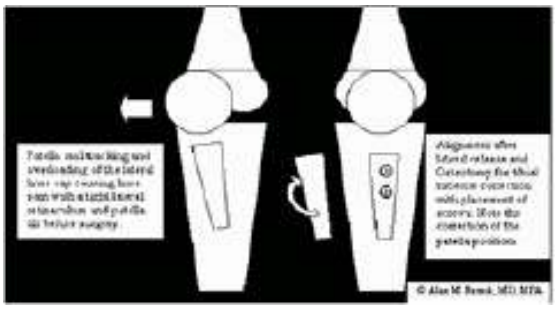
The knee is made of three bones, the kneecap (patella), the shin bone (tibia) and thigh bone (femur). To make the movement smooth and pain free, these bones are covered with a layer of cartilage on their contact surfaces. The patella is also held in place by a broad tendon and one of the largest muscles in the body. This tendon mechanism connects the thigh muscle (quadriceps) to the shin bone (tibia) just below the knee joint. The patella and patella tendon together with the quadriceps muscle are responsible for the ability to stand, walk, jump, kneel and navigate stairs. To do all of this, a normal functioning kneecap slides up and down a groove on the end of the femur as the knee bends. For stability, this groove (the patellofemoral articulation) is designed to guide the kneecap down the center of the knee joint and slide evenly within the groove.

The groove varies in people, sometimes it is steep and in other people it is very shallow. The tendon can also be aligned to the inner or outer side of the knee. The ligaments on either side of the kneecap can be loose of tight. When the grove is shallow or the tendon is mal-aligned, the kneecap can jump over the edge of its groove. Occasionally this is worsened by a direct result of trauma or a sports injury. An injury of this type can weaken the soft tissue support for the kneecap in its grove and subluxation or dislocation can occur more easily. When this happens frequently, it causes pain and disability. In **recurrent patella subluxation** the patient complains of a sensation of kneecap dislocation or “giving way.” Sometimes the feeling is difficult to describe, and it can be confusing since other knee problems (like ligament or cartilage tears) also cause the sense of giving way. Physical examination of the knee with the findings of pain along the outside or under the kneecap or mal-tracking of the patella with squatting bending or stairs can help make the correct diagnosis.

Treatment: In those patients where tightness of one part of the tendon overpowers the other the patella tends to subluxate toward the tight side (it is almost always lateral tightness). When the diagnosis is clear, one type of surgery to improve alignment and stability involves using the

arthroscopy to release the tight tissue on the outer side of the patella (a “lateral release.”) Releasing the tighter side often decreases the subluxation, reduces the pressure on the cartilage, decreases pain and improves function. Other patients have both tightness on the outer side of the knee and a mal-position of the tibial insertion of the patella tendon. The tendon mal-alignment also pulls the knee cap to one side. The distance between the center of the grove and the location of the tendon insertion on the tibia helps us to decide if this is an important factor in this problem. In those cases, **moving the bony attachment point** is the best way to control the kneecap’s position in its grove.

In the tibia tubercle **realignment procedure (also known as a tibia tubercle transfer)**, the location at which the tendon attaches to the tibial tubercle (the bony prominence below the patella) is moved forward and toward the inner side. It is then held in place with two screws. The screws hold the bone in place while it heals and help the patient become active sooner. The procedure is done in a special way to avoid some of the pitfalls of older methods used to correct this problem. The end effect of this procedure is to hold the patella within its normal grove, correcting the tendency for it to slide out of position to the outer or lateral side with a quicker recovery than traditional corrections.



Dr. Reznik does this as a **minimally invasive** procedure using the arthroscope to prepare the knee and a smaller incision for the movement of the bone attachment. He does this as an outpatient procedure avoiding a hospital stay and allowing the patient to recover in the comfort of their own home.

Recovery Plan: Below are helpful tips when planning surgery and the recovery at home.

Pain Control: Take medication as prescribed by Dr. Reznik. Please call our office with any questions regarding your medication. Use ice machine as directed and elevate leg above heart level. This will decrease swelling and help with a common complaint of “throbbing” pain associated with a tibial tuberosity, lateral release procedure.

Immobilizer: You will need a knee immobilizer for 2-3 weeks to protect the knee. When the knee is more stable you will change into a knee hinge brace. **Most patients can start full weight bearing as symptoms allow after 3 weeks while wearing the hinge brace.**

Diet: You may resume a **regular diet** when you return home. Most patients start with tea or broth adding crackers or toast, then a non-spicy sandwich. If you become nauseated, check to see if one of your medications is upsetting your stomach, most narcotics can. If your stomach feels acidy, try **Tums, Zantac** or **Pepcid AC** to settle it and drink some clear liquids. Avoid grapefruit, tomato and orange juice since they have a high acid content.

Lungs: After surgery you are encouraged to **deep breathe** and cough frequently (at lease 3-4 times per day). This will reduce mucous from building up in your lungs and will reduce the small risk of developing a post anesthetic pneumonia even further.

Dressing and Bleeding: After a tibial tuberosity transfer and a lateral release, a moderate to amount of blood tinged drainage (mostly Novocain used in the knee before during the procedure for post op pain control) is common. Sometimes this is brought on by the first few times the knee is bent or after the first few steps at home. You may need to reinforce the dressing during the first 24 – 48 hours. Applying pressure to area will help reduce this drainage.

Important Precautions with Ice Machine Use

- Always keep a thin gauze or cloth between the skin and the cooling pad. Do not allow the pad to contact the skin directly as this may cause frostbite.
- After the first dressing change, inspect the skin regularly and notify our office staff if there are any sign of changes in skin appearance or increasing redness.
- Change the ice and water when you are unable to maintain a temperature of 48-52 degrees. Lower temperatures may damage the skin.

When you wake up in the recovery room, a long leg immobilizer and a cold pad wrapped in with an Ace bandage will be on the surgical leg connected to an ice machine. Using the ice machine will help you remain comfortable and will also aid in reducing the swelling. You should follow this schedule:

Day 1 and 2: Use the cooling machine most of the time (including throughout the night). Disconnect from the machine to the bathroom.

Day 3 and 4: At least 2 hours on and ½ hour off. You may find that the combination of 3 hours on and 3 hours off also works well. Start physical therapy.

Day 5 and after: Use as needed for comfort and swelling.

****Change the ice and water when you are unable to maintain a temperature of 50-52 Degrees**

Dressings: The first dressing change will be at your first therapy appointment, after that change you may shower. It is recommended to use an antibacterial soap. Do not remove the small white “steri-strips” and keep them dry; they will be removed, as well as any stitches, at your first post-op visit with Dr. Reznik. Gently bend your knee a few times while in the shower. After your shower place a small bandage over the front kneecap incision and Band-Aids over the other two incisions. When replacing the ice machine pad do not place directly on skin as this can cause frostbite. Wrap in a cloth or place between Ace bandages.

Crutches: Patients are to use two crutches for 7-10 days putting light weight on the foot with each step. Increase the weight as tolerated. After 10 days, most patients can advance to one crutch for short distances. After 3-4 weeks, once in the hinge brace, when you are able to fully bear weight comfortably, you may then advance to one crutch for the next few days and then to no crutches.

Return to Work: People with light work (desk work with no squatting, lifting or kneeling) can return to work in a week. The exception is for people who may have long commutes. By staying still with the leg down for long periods, **THEY ARE AT RISK FOR BLOOD CLOTS.** Patients with active office work or very light labor with variable tasks can sometimes go back to work at two or three weeks, depending on lifting requirements. Heavy work, (lifting or unprotected heights) cannot usually return before 6 weeks, most will need to be cleared by their physical therapist.

Blood Clots: Those at higher risk of blood clots include those patients who have sedentary life styles, long car or train commutes, have a history of prior cancer, women on birth control pills, may be overweight or males over the age of 40. These patients should be taking an at least a baby aspirin per day (unless allergic or sensitive). Doing the exercises (ankle pumps below), using aspirin and at times compressive stockings will also reduce the risk of blood clots. Patients who have a history of clots in the past or three or more of the above risk factors should ask if they should be on a blood thinner post op for at least six weeks.

Airline Flights: Patients may fly 2-3 weeks after surgery on short flights (up to 2 hours) but should wait 6-8 weeks for longer flights. You should get up and walk frequently to avoid blood

clots and take an aspirin (unless allergic) Check with Dr. Reznik if you have any questions before flying.

Dental Work: You **CANNOT** have any routine **DENTAL WORK** for at least 3 months after your surgery (including cleaning) or you risk infection. After 3 months you may see the dentist, but you will need to take antibiotics before and after dental work for one year from date of surgery. If you need an emergency dental procedure make sure you tell your dentist you need protective "prophylactic" antibiotics before and after the procedure.

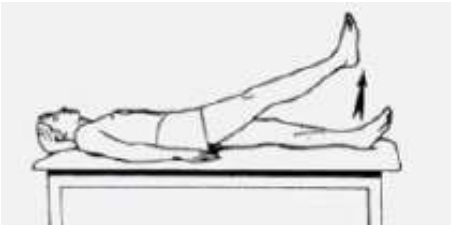
Remember Therapy is vital to your recovery of good knee function is a graduated activity and exercise program to increase muscle strength and knee motion. Your physical therapy will begin 3-4 days after surgery. The physical therapist will guide you in your knee rehabilitation program. It is VERY important for you to start therapy when recommended. To avoid complications, postoperative follow up appointments with your physician are also required to monitor your progress.

You will begin simple exercises the day of surgery. They should be done every day for the first week post-op, to maintain blood flow in the surgical leg and help prevent blood clots. Formal physical therapy will begin between three to five days after surgery.

Post-Operative Exercises

You will start these exercises while still in the recovery room. Then, while resting after the surgery, do the following:

Ankle Pumps: Pump your ankle up and down for 1 minute (like pressing on the gas pedal). This will increase circulation and reduce the risk of developing a blood clot.



Straight Leg Raises: Tighten your quads (muscle in the front of your thigh) with the knee immobilizer on and raise your leg 8 to 12 inches off the bed. At least three times a day as prescribed by Dr. Reznik. Please call out office with any questions regarding your medication. Ice as directed. Elevate leg above heart level using 2-3 pillows. This will also decrease swelling.

Deep breathing: be sure to regularly take a deep breath and blow it out. This helps to clear the lungs after an anesthetic.

Stop smoking: Smoking slows the healing process by interfering with the making of new DNA. Smoking also increases the risk of infection and pneumonia after surgery by slowing your body's white blood cells.

If you find yourself in bed or resting frequently: Move your arms when in bed. You can use very light weights for upper arm exercises when in bed to keep your muscles ready for the demands of using crutches.