Understanding High Tibial Osteotomy (HTO) Surgery

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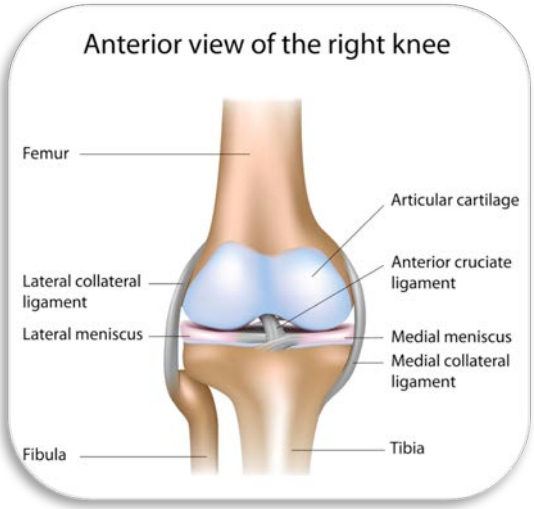
Our goal at The Orthopedic Institute of Wisconsin is to provide high quality care, both non-surgical and surgical. This approach allows our patients to regain lost function and experience pain relief that will hopefully result in the improvement of their quality of life. If you have any additional questions, please call: (414) 643-8800

Understanding Knee Anatomy

The knee joint joins the thigh bone (femur) to the shin bone (tibia). Tendons connect these bones to the muscles in the leg that move the knee. Ligaments in the knee connect the bones and provide stability. Articular cartilage exists within the knee joint to protect the bones and help it bend smoothly. The knee is aligned so that approximately equal pressure is applied to the inner (medial) and outer (lateral) sides of the knee.



Who Needs an HTO?

When a patient's tibia and femur do not align properly, one side of the knee joint will bear more stress than the other. Overtime, this pressure can cause trauma to the involved bone and cartilage. Osteoarthritis can develop in the knee joint, causing pain, inflammation, and stiffness. Patients are often put into a correcting brace to determine if the surgery will be successful in alleviating their pain.

What is Osteoarthritis?

Arthritis is inflammation within the knee joint. Its development eventually leads to the loss of the articular cartilage that allows the joint to bend smoothly. Once cartilage is damaged, a patient is said to have bone-on-bone contact. This contact can lead to constant pain, clicking, grinding of the joint, and loss of strength. When arthritis becomes severe, the body recognizes the bone-on-bone contact and reacts by attempting to stabilize the joint and limit the motion that was causing the loss of cartilage. It does so by forming bone spurs, also called osteophytes, at the damaged locations.

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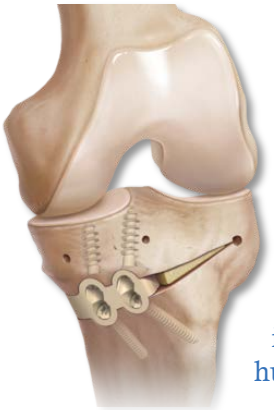
The Surgery

This procedure will take, on average, 60-90 minutes and involves correcting the malalignment of the tibia and femur. A 3 - 4 inch incision is made below the knee, on the front of the leg, to allow access to the tibia. A cut is made into the inner (medial) side of the tibia, beneath the healthy side of the knee joint. Dr. Pennington opens up the bone to the angle that will correct the malalignment of the tibia. Using a guide, the correctly sized wedge is selected to insert into the tibia based upon your individual anatomy. When the wedge is inserted, it straightens the leg, bringing the healthy side of the knee closer together and allowing for more space between the bones on the damaged, osteoarthritic side. A plate and four screws are inserted in order to hold the wedge into place. A human bone graft is used to fill in any empty space.



Typical Schedule of Follow-Up Visits

Five-to-ten day assessment
- Staples removed
- Pain level check
- CPM machine use assessed

1-month assessment
- Range of motion check

2-3 month assessment
- Range of motion check
- Strength check

4-6 month assessment
- Hopeful return to activity

Dana Hahn, Patient Care Coord. | Brian Bartz, PA-C | William Pennington, MD | Joann Pitton, PA-C

Post-Operative Expectations

After surgery, you can expect your knee to be wrapped in a polar care ice machine in order to reduce inflammation and pain immediately following surgery. Your incision site will be covered in a sterile dressing; keep your incision site clean and dry. Some bruising of the lower leg is to be expected. Patients can expect to be on crutches for 2-3 weeks, or until it is not painful to walk without them. A continuous passive motion (CPM) machine will be provided to you following your surgery in order to progress with passive range of motion. Weight is not to be put on the leg for 1 week following surgery and is to be restricted for 6 weeks. Following, weight bearing is to be done as tolerated. You may drive once you are no longer taking prescription pain medication and when you have been cleared by your physical therapist. You should be able to return to normal activities 3-6 months following surgery.

Physical Therapy

The continuous passive motion (CPM) machine that is supplied is generally started the day after surgery and is advanced with the patient's tolerance. Physical therapy begins soon after surgery and focuses on pain relief and passive motion, followed by active motion and strengthening of the knee and leg. Those patients who are diligent about physical therapy and rehabilitation can expect the best post-op results and the earliest return to activity.