

Physical Therapy Protocol for Knee Arthroscopy

The following rehabilitation guidelines and protocol are developed for patients who have undergone arthroscopic knee surgery. Many different problems and injuries can be addressed with a knee scope, but the common thread that allows them all to be treated with the same physical therapy protocol is that there are no specific protections or restrictions that need to be followed after surgery. Often this is because the surgery was performed to remove something, such as a torn piece of meniscus or cartilage, or a loose body in the knee joint, and now that the offending problem is gone, the knee can return to its usual function. However, just because there are no specific protections or restrictions after surgery does not mean your knee is normal. The process of the surgery itself is a significant injury and trauma to the knee joint and must be rehabilitated appropriately or else there is a risk of re-injury or inflaming the knee if activity is progressed too rapidly. Even though the knee may feel much better after the surgery, it is not ready to return to full normal activity immediately. Exercises should be gradually progressed based upon protocol recommendations and criteria, physician discretion, and the patient's ability to perform the exercises correctly and without an increase in pain. We have avoided making many notes for specific time points in our protocol, as progression should be largely based on achievement of milestones rather than the passage of time. Some patients recover more slowly than others, and that is fine provided steady forward progress is happening. This protocol is not designed to replace the judgment, communication, and experience of a skilled physical therapist. If at any point in the rehabilitation process there are concerns or questions that arise, please do not hesitate to contact us so that we can answer it to the best of our ability.

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Key Considerations

Patient Education

It is important to take the time during initial evals, and then regularly throughout the course of rehabilitation, to discuss and review important considerations related to their injury. Remember that each patient will present with different post-surgical considerations, pain levels, goals, etc. Reviewing this information with the patient and what to expect throughout the rehabilitation is of paramount importance.

For the Physical Therapist

Arthrogenic Muscle Inhibition (AMI):

Arthrogenic muscle inhibition (AMI) is a common occurrence following knee surgery and limits the quadriceps ability to activate effectively. Clinicians can consider the use of neuromuscular electrical stimulation (NMES), cryotherapy, etc. to limit the effects of AMI and promote quadriceps activation.

Exercise Progressions/Loading:

All exercises should be performed with progression of loading variables as tolerated (increased repetitions, sets, weight, speed, etc.)

Maintenance of Strength in Uninvolved Limb

Start bilateral strength work (single leg exercises should be performed on the operative side AND uninjured side) immediately – it is critical to keep the uninvolved limb from becoming the involved limb

Movement Quality

It is important to evaluate the entire kinetic chain. The knee is controlled from above and below - poor hip/ankle mobility can force the knee joint to become extra mobile, which is unnecessary stress on the meniscus repair, and poor hip adduction/IR strength or hyperpronation of the foot can result in lack of control of the knee.

If at any time there are signs of infection (increased swelling, redness, drainage from the incisions, warmth, fever, chills or severe pain that is uncontrolled with the pain medication) or signs of DVT (calf swelling or tenderness, calf redness) please contact us at the office: 214-383-9356.

Milestones and Required Clinical Visits in MD's Office

- 2 weeks – Incision check
- 6 weeks – Motion/strength check
- 12 weeks – Performance check (if needed)

Phase I: Early Motion/Healing

Goals	<ul style="list-style-type: none"> - Gain control of pain and diminish joint swelling - Emphasis on regaining knee extension to zero as early as possible as well as gradual improvement of knee flexion - Increased quadriceps activation and reestablishing quad control
Brace/crutches	No brace or crutches are required as there is immediate weight bearing as tolerated, however, the use of one or two crutches for the first week or two to help offload the surgical knee may be beneficial for control of pain and swelling
Suggested Exercises ROM Strength	<p>Patellar Mobilizations</p> <ul style="list-style-type: none"> - All 4 directions; anterior interval, suprapatellar pouch <p>Extension ROM</p> <ul style="list-style-type: none"> - Hamstring/gastroc stretching, etc. - Low load long duration stretching (heel prop/bag hang) <p>Flexion ROM</p> <ul style="list-style-type: none"> - Avoid active resisted knee flexion for the first phase <ul style="list-style-type: none"> - Goal ROM: Week 1 – 0-90°, Week 2 – 0-120°, Week 3 – Full - Heel/wall slides, etc. - Don't worry if flexion is tough to obtain in the earliest phase <ul style="list-style-type: none"> • We have to go slow early to go fast later in a painful/swollen (“reactive”) knee <p>Quadriceps strength/control – all to be done within pain free ROM</p> <ul style="list-style-type: none"> - NMES <ul style="list-style-type: none"> • To be used with all quadriceps exercises if quad is not efficiently firing - Short arc quad progression <ul style="list-style-type: none"> • Towel roll at heel → mid-gastroc → knee → decrease towel height to table - Hip abduction/adduction - Knee extension - Mini squats <p>Ok to begin <u>bicycle</u> immediately to regain ROM, ok to use for cardio once full revolutions can be achieved</p>
Frequency & Duration	2-3x weekly formal PT, 2-3x daily home exercises/ROM work
Progression Criteria	<p>Must meet ALL criteria prior to progressing into phase 2:</p> <ol style="list-style-type: none"> 1. Active knee range of motion 0-110° with side to side knee extension difference $\leq 5^\circ$ 2. Minimal complaints of pain and swelling in the surgical knee 3. Complete 1 sets of 10 repetitions of a straight leg raise with no extension lag

Phase II: Motion and Early Strengthening

Goals	<ul style="list-style-type: none"> - Improve single limb strength and increase functional activities - Restore normal ROM and normal ambulation
Precautions	Avoid running, jumping, heavy lifting, and deep resisted knee flexion (>110°) x 6 weeks
<p>Suggested Exercises</p> <p>ROM</p> <p>Strength</p> <p>Balance/ proprioception</p>	<p><i>Increase repetitions, weight, and visual manipulation of phase 1 exercises, plus:</i></p> <p>Continue to progress with goal of symmetry to contralateral side</p> <p>Increase quadriceps strength/control within available pain-free ROM</p> <ul style="list-style-type: none"> - Leg press, knee extension, wall squats, vertical squats - Lateral step ups, front and lateral lunges <p>Hip abduction/adduction, hamstring curls</p> <p>Bicycle/elliptical</p> <p>Weight shifts (body weight) sagittal/frontal planes</p> <ul style="list-style-type: none"> - Progress to single leg balance, add visual restriction, rocker board, etc. <p>Squat movement pattern</p> <ul style="list-style-type: none"> - Lunge → lateral step down → single leg squat → resisted single leg squats - Use shuttle/leg press to help bridge gap between stages <p>Hip hinge movement pattern - Double leg deadlift → single leg deadlift</p>
Frequency & Duration	2-3x weekly formal PT, daily home exercises/stretching
Progression Criteria	<p>Must meet ALL criteria prior to progressing into Phase 3:</p> <ol style="list-style-type: none"> 1. Full knee active range of motion: no side to side active knee extension difference 2. No pain or tenderness, normal clinical exam 3. Normalized gait with excellent quadriceps control and balance

Phase III: Return to Running/Sport

Goals	<ul style="list-style-type: none"> - Increase the intensity of training and improve the strength foundation - Incorporate functional balance activities - Transition to movements geared more towards speed, power, and function
<p>Suggested Exercises</p> <p>Landing Progression</p> <p>Multi-planar Movements</p> <p>Interval Running Program</p>	<p><i>Increase repetitions, resistance, and speed of movement of earlier phases, plus:</i></p> <p>Proper eccentric control must be taught before jumping/running can begin</p> <ul style="list-style-type: none"> - 2-leg to 2-leg with hold → 2-leg to 1-leg with hold → 1-leg to 1-leg <p>Introduction of horizontal and transverse plane movements, starting with static and progressing to dynamic in preparation of jumping in other planes</p> <ul style="list-style-type: none"> - Static (lateral lunges in place, etc.) - Dynamic (lateral lunges, curtsy lunges, single leg balance with rotation, etc.) - Jumping (2-leg → 1-leg lateral/rotational bounding → hopping, etc.) <p>Use a program focused on progression of running volume while utilizing walking rest</p> <ul style="list-style-type: none"> - Find example program in rehab protocols at www.parkerorthopedics.com
Frequency & Duration	2x weekly formal PT with 4x weekly home exercises
Progression Criteria	Must see MD for full clearance to return to competitive sports. Return to sport testing including strength and motion analysis will be performed prior to this visit.