

## **ACL RECONSTRUCTION WITH PATELLAR TENDON AUTOGRAFT WITHOUT MENISCAL REPAIR POST-OP INSTRUCTIONS AND REHAB PROTOCOL**

This protocol has been developed for the patient following Anterior Cruciate Ligament (ACL) reconstruction. This protocol may vary in length, aggressiveness and return to sports/activities depending on factors such as: concomitant procedures or additional injuries seen at the time of surgery, primary vs revision surgery and desired activity level/sport.

The goal of this rehabilitation plan is to facilitate return to the pre-injury level of function. Return to activity and sports depend upon multiple factors. Some factors, such as time and graft incorporation are factors outside of our control. Return to sports and cutting activities is allowed after the patient achieves adequate flexibility, strength and endurance of the knee that is equal to at least approximately 90% of the other side. Generally this occurs around 9 months from the time of the operation.

### **For patients at a glance:**

- The first 72 hours after surgery should generally be spent resting and recovering. Elevate your operative leg above your heart level as much as possible for the first couple days to help control pain and swelling.
- Use the prescribed ice machine or ice bags 30 minutes every couple hours to control pain/swelling
- Take 1 tablet (325 mg) of aspirin per day**, starting the day after surgery and continuing **for 2 weeks**. This is done to decrease the risk of blood clots. If there is personal history of blood clots or if there is any known condition that makes you more susceptible to blood clots please let Dr. Hazelwood know.
- If you had a **nerve block at the time of surgery, it usually wears off 12-24 hrs post-operatively**. It is normal to have some numbness in the leg the first few days after surgery as a result. The first night after surgery take pain medication before going to bed as the nerve block will often wear off during the night.
- Pain Control:** Take the pain medication as prescribed. You may supplement your pain medication with over the counter Tylenol and Ibuprofen. Please make sure you are not exceeding recommended doses (4 gm of Tylenol per 24 hour).
- Dressing** may be removed 3 days after surgery, but keep the steri-strips in place. Try to keep the wound as dry as possible until follow-up.
- It is ok to shower after surgery, but keep the dressings and incision wrapped with saran wrap or something similar. When in the shower, do not scrub or soak the incisions. Just let

soap/water run over the knee and pat dry. Do not submerge incisions in bath or pool until fully healed (3-4 weeks).

-**Physical therapy** should begin within one week following surgery.

-You will be **weight bearing as tolerated** with crutches. You will use crutches as needed until you can walk comfortably and safely without them. Your therapist will help guide you on this.

-**Brace Use:** Use the brace at all times except showering and doing your physical therapy exercises for the first 4 weeks. The range of motion on your brace should be set from full extension to max flexion allowed on the brace

-**Return to driving:** There is no conclusive data to guide the exact time when it is safe to return to driving. You cannot drive while still on narcotic pain medications. In general, there should be adequate range of motion of the knee, minimal pain/swelling, and enough strength in the leg to allow you to quickly brake if needed.

-**Stairs:** When going up stairs, lead with non-surgical side, when going down stairs lead with crutches and surgical side.

#### **I. Rehabilitation Protocol 0-6 Weeks Post-Op**

- a. **Range of motion:** goal 0-90 by two weeks post-operatively. **Emphasize full extension**
  - i. Heel Slides, **No restrictions on active flexion.**
  - ii. **Avoid repetitive active terminal extension (0-30°). Focus on passive terminal extension for the first 2 weeks.**
- b. **Weight bearing as tolerated**
- c. **Brace:** Wear brace all times except shower and exercises x 4 weeks. Brace should be set from full extension and maximum flexion that the brace allows. After week 4 use the brace for walking only outside the house
- d. Prone Hangs
- e. Quadriceps "re-education." Isometric Quadriceps strengthening. Straight leg raises/quad sets
- f. **If BFR available, use after 2 weeks**
- g. Hip/Core progressive resistive exercises, Gastroc-soleus stretch, heel raises, toe raises
- h. Patellar mobilization emphasize superior glides
- i. Mini squats (0-45 degrees)
- j. Balance training: weight shifts (side-side and forward-backwards)
- k. Modalities: cryotherapy, electrical stimulation, edema control, etc.
- l. Ok to start stationary bicycle when adequate flexion

#### **II. 6-12 Weeks Post-Op**

- a. Continue exercises from earlier protocol
- b. No restrictions on range of motion
  - i. **Goal 0-130 degrees**

- ii. Manual therapy as needed
- c. Hip/Core/Hamstring/Quad progressive resistive exercises
- d. Squat/step program
  - i. **(Limit squat activities to a maximum of 90 degrees knee flexion)**
- e. Stationary bike, elliptical
- f. Continue closed chain quadriceps strengthening in full arc (leg press, wall slides)
- g. Advance proprioception program
- h. Quadriceps isotonic in 90-30 degree arc
- i. Continue edema control/modalities/patellar mobilization

**III. 12-24 Weeks Post-Op**

- a. Continue all exercises from earlier protocol
- b. Quadriceps isotonic- Ok for full arc for closed chain. Open chain: 90 – 30 degrees
- c. Isokinetic quadriceps exercises
- d. **May begin jogging program.** First treadmill, then progress to hard surfaces
  - i. Do not start running sooner than 12 weeks
  - ii. Can start jogging program if quad control/strength/swelling/motion allows
  - iii. **No full speed running/cutting activities**
- e. Progress proprioception
- f. Plyometric program
- g. Initiate functional program with sport specific drills

**IV. 24 Weeks Post-Op and Beyond**

- a. Continue advanced strengthening
  - i. Full arc progressive resistance exercises-emphasize quads
- b. Progress running and swimming programs
  - i. Ok for in-line full speed running
- c. Improve multidirectional control, dynamic movements. Improve landing mechanics, add in sport specific exercises based on patient's desired sport. If cutting sport focus on rapid acceleration/deceleration activities.
- d. Progress neuromuscular/functional program
- e. Agility drills
- f. KT-1000 test if available]
- g. Isokinetic test at 60°/second, 180°/second, 240°/second as available
- h. Modalities as needed

**V. Return to competitive sports and full speed cutting activities 9 months**

- a. You need to be cleared by Dr. Hazelwood and your physical therapist/athletic trainer

- b. In general, for ACL reconstruction using a soft tissue graft this occurs at the earliest around 9 months. Some studies have demonstrated higher risk of re-tear when returning sooner to 9 months. Several studies have also demonstrated continued weakness in the operative leg up to 1 year following reconstruction and beyond.
- c. Return to sports and cutting activities is allowed after the patient achieves adequate flexibility, strength and endurance of the knee that is equal to at least approximately 90% of the other side. In some cases we may use other objective testing such as Isokinetic testing/Hop testing.