

## **MENISCAL TRANSPLANT REHABILITATION PROTOCOL**

**Dr. David R. Guelich**

This rehabilitation protocol has been developed for the patient with a meniscal transplant procedure. It is extremely important to protect this patient against high weight bearing forces during the early postoperative period to avoid shearing or disruption of the graft tissues. Early passive range of motion is highly beneficial to enhance the cartilage and the remodeling process. The protocol is divided into phases. Each phase is adaptable based on the individual patient and special circumstances.

The **overall goals** of the surgical procedure and rehabilitation are to:

- Control pain, swelling, and hemarthrosis
- Regain normal knee range of motion
- Regain a normal gait pattern and neuromuscular stability for ambulation
- Regain normal lower extremity strength
- Regain normal proprioception, balance, and coordination for daily activities
- Achieve the level of function based on the orthopedic and patient goals

The physical therapy should be initiated within 3 to 5 days post-op. It is extremely important for the supervised rehabilitation to be supplemented by a home fitness program where the patient performs the given exercises at home or at a gym facility. **Important post-op signs** to monitor:

- Swelling of the knee or surrounding soft tissue
- Abnormal pain response, hypersensitive
- Abnormal gait pattern, with or without assistive device
- Limited range of motion
- Weakness in the lower extremity musculature ( quadriceps, hamstring)
- Insufficient lower extremity flexibility

**Return to activity** requires both time and clinical evaluation. To safely and most efficiently return to normal or high level functional activity, the patient requires adequate strength, flexibility, and endurance. Isokinetic testing and functional evaluation are both methods of evaluating a patient's readiness to return to activity. Return to intense activities following a meniscal transplant may increase the risk of repeat injury or the potential of compounding the original injury. Symptoms such as pain, swelling, or instability should be closely monitored by the patient.

**Dr. David R. Guelich**  
**Phase 1: Week 1-4**  
**Meniscal Transplant**

<b>WEEK</b>	<b>EXERCISE</b>	<b>GOAL</b>
1-4	<p>ROM</p> <p>Passive, 0-90° Patella mobs Ankle pumps Gastoc/Soleus/Hamstring stretch Heel/Wall slides to reach goal</p> <p>STRENGTH</p> <p>Quad sets with e-stim/biofeedback SLR in (flex, abd, add) as tolerated Multi-angle isometrics (0-60°) Hamstring/Gluteal isometric sets Knee extension (90-30°) (active assisted)</p> <p>WEIGHT BEARING</p> <p>TDWB TO PWB Crutches post-op</p> <p>BRACE</p> <p>Bracing with 0-90° range of motion Removed during range of motion exercise</p> <p>MODALITIES</p> <p>E-stim/biofeedback as needed Ice 15-20 minutes</p>	<p>0-90°</p> <p>TDWB-PWB</p> <p>0-90°</p>

**GOALS OF PHASE:**

- ROM 0-90°
- Adequate quad/VMO contraction
- Independent in HEP
- Control pain, inflammation, and effusion
- TDWB to PWB as noted by Dr. Guelich

**Phase 2: Week 4-12  
Meniscal Transplant**

<b>WEEK</b>	<b>EXERCISE</b>	<b>GOAL</b>
4-12	<p>ROM</p> <p>Passive, 0-135° Patella mobs Gastoc/Soleus/Hamstring stretch ITB/Quad stretch Heel/Wall slides to reach goal Prone hang to reach goal</p> <p>STRENGTH</p> <p>Progression of isometric exercises SLR in 4 planes with ankle wt/tubing Knee extension (90-30°) with light weight Hamstring curl with light weight Leg press (0-60°)/Total Gym Heel raise/Toe raise Multi-hip in 4 directions Mini-squats (0-30°) Initiate 3-6" lateral/forward step-up/down</p> <p>BALANCE TRAINING</p> <p>Weight shift (side-to-side, fwd/bkwd) Initiate single leg balance work ½ Foam roller work Wobble board work Sportscored balance/agility work</p> <p>WEIGHT BEARING</p> <p>PWB to FWB with quad control</p> <p>BRACE</p> <p>Discharge at week 4</p> <p>AEROBIC CONDITIONING</p> <p>Bicycle when flexion is 110° EFX Walking program Swimming</p> <p>MODALITIES</p> <p>Ice 15-20 minutes</p>	<p>0-135°</p> <p>PWB to FWB D/C wk 4</p>

**GOALS OF PHASE:**

- PWB to FWB

- ROM 0-135°
- Control pain, inflammation, and effusion
- Increase lower extremity strength
- Enhance proprioception, balance, and coordination

### **Phase 3: Week 12-16 Meniscal Transplant**

**WEEK**  
12-16

**EXERCISE**

ROM

Gastroc/Soleus/Hamstring stretch  
ITB/Quad stretch

STRENGTH

Continue all strengthening exercises from  
previous phases  
Progress with all single leg activity

BALANCE TRAINING

Advanced proprioception/balance activity  
Single leg work with plyotoss  
Dynamic balance work on advanced surfaces

RUNNING PROGRAM

Initiate jump rope for endurance and impact  
Initiate running on minitramp, progress to  
treadmill as tolerated

FUNCTIONAL TRAINING

Lateral movements (slide board, shuffles)  
Initiate light plyometric training

MODALITIES

Ice 15-20 minutes as needed

**GOALS OF PHASE**

- Maintain full range of motion
- Increase lower extremity strength and endurance
- Initiate functional activity
- Initiate sport specific activity

**Phase 4: Week 16-24  
Meniscal Transplant**

**WEEK**  
16-24

**EXERCISE**

ROM

Continue with all stretching activities

STRENGTH

Continue with all strengthening activities from previous phases increasing weight and repetition

RUNNING/CONDITIONING PROGRAM

Bicycle with resistance for endurance

EFX/StairMaster for endurance

Increase running program

Increase walking program

Swimming for endurance

Backward running

CUTTING/AGILITY PROGRAM

Lateral shuffle/slide board

Carioca

Figure 8's

FUNCTIONAL TRAINING

Advance plyometric program

Advance sport specific drills

MODALITIES

Ice 15-20 minutes as needed

**GOALS OF PHASE:**

- Enhance lower extremity strength and endurance
- Return to previous activity level
- Return to sport specific functional level